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ABSTRACT

Designed to develop in the student skills in all of the preparatory functions of the graphic communications industry, this student guide covers copy preparation, art preparation, typography, camera, stripping, production management, and forms design, preparation, and analysis. In addition to the skills areas, material is included on the history of graphic communications, proper safety procedures, equipment maintenance and housekeeping, and opportunity to study the interrelationship of the various graphic communications specializations. Material is presented in eight units, each containing objectives, information (text), references, and assignments or activities to perform. Unit headings are as follows: (1) Exploring Graphic Communications, (2) Shop Rules and Safety, (3) History and Technical Background, (4) Work Flow in a Modern Shop, (5) Typography, (6) Copyfitting, (7) CompuWriter I, (8) IBM Selectric Composer, (9) Comp/Set, and (10) Proofreading. Diagrams and illustrations are included. (A companion teacher's manual with lists of procedures and teaching suggestions is available separately.) (JT)

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State of New Jersey
Department of Education
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GRAPHIC COMMUNICATIONS – PREPARATORY AREA

BOOK I – TYPOGRAPHY and MODERN TYPESETTING

Student Manual

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GRAPHIC COMMUNICATIONS – Preparatory Work ("Prep")

A Few Words About the Course

The objective of the "Prep" Course of Study is to develop in the student skills in all of the preparatory functions of the Graphic Communications industry:

Copy Preparation – copyfitting, choosing type faces, formatting, proofreading, ascertaining the client's requirements.

Art Preparation – rough and comprehensive layouts, interpretation of commercial artist's requirements, pasteup, mechanicals, color overlays, scaling of illustrations, use of clip art, use of white space, separations for multicolor work, pen ruling.

Typography – phototypesetting on the CompuWriter and the Comp/Set 500, strike-on method of typesetting as on the IBM Selectric Composer, use of transfer type, display typesetting. Included is English for printers, and the use of the dictionary.

Camera – The process camera, the 3M MR-412 Camera Plate System, dark-room procedures, line and screened copy, contact prints, the PMT System, process color work, color separations, typography processors.

Stripping – layout of flats, strip-up and taping, window cutouts, opaquing, rule scribing, trim and register marks, stripping to impositions, separations.

Production Management – work flow, estimating, assignment of work and coordination within a plant, purchasing procedures, work follow-up, customer contact, preparation of the job ticket, paper calculations, record keeping.

Forms Design, Preparation, and Analysis – sketching the form, analysis of client's requirements and the equipment on which form is to be used, typesetting and ruling the form, pasteups.

In addition to the aforementioned specific skills, the student will receive instruction covering the history of Graphic Communications, proper safety procedures, equipment maintenance and housekeeping, and opportunity to study the interrelationship of the various Graphic Communications specializations.

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The author wishes to acknowledge the valuable assistance rendered by Dr. Philip Edgecomb, now Director (Acting) of the Vocational-Technical Curriculum Laboratory of Rutgers University. Dr. Edgecomb's patient counsel and technical guidance made the author's work a much easier task than had been anticipated.

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The following sources were used in the preparation of this guide:

Broekhuizen, Richard J., *Graphic Communications,* McKnight and McKnight, Bloomington, Illinois, 1973

Karch, R. Randolph and Edward J. Buber, *Graphic Arts Procedures,* American Technical Society, Chicago, Ill., 1973

International Paper Company, *Pocket Pal – 11th Edition,* New York, 1974

AM-Varityper Division – *Comp/Set Operating Instructions*

Compugraphic Corporation – *Applications Manual, CompuWriter*

International Business Machines, *IBM Selectric Composer Training Guide – 1969*

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UNIT 1 – EXPLORING GRAPHIC COMMUNICATIONS

Objective: Be able to describe the job opportunities, working conditions, responsibilities, financial returns, and job security in the Prep area of the Graphics Communications industry.

Information: Many specialists are needed in the Prep area of Graphics Communications. "Prep" means *preparatory work*. It includes copy preparation, art preparation, typography, camera, stripping, production management, forms design, etc. You may find a job in one of these areas, or you may have to work at many of them. Workers in small shops "wear many hats"; they may have to do typesetting and pasteup also. Prepare yourself well by learning all areas while you are in school.

Job opportunities. – Employment is available with printing firms, packagers, publishers, advertising agencies, in-plant print shops of industrial firms, government agencies, television studios, newspapers, art studios, and large commercial enterprises. The Graphics Communications industry is highly unionized, but many non-union firms also offer excellent employment opportunities. Union apprentice opportunities are available with the International Typographical Union, which runs an excellent Graphics Communications school.

Financial Returns/Security. – The skilled worker, the technician, and the journeyman can expect above-average salaries. The person who is skilled in the most areas should find the most job opportunities. Being able to use the newest methods and equipment is also important. There are many opportunities for employees and owners of small shops in Graphics Communications.

Responsibilities. – The Prep person is an important member of the total production team. You must enjoy exacting, detailed work and must be able to follow the client's instructions carefully. A total printing job may cost thousands of dollars. A mistake at the prep stage may ruin the entire job.

Working Conditions. – The prep work is usually done in a quiet, clean, well-lighted, distraction-free part of the building. The work day is usually 7 or 8 hours. Shift work may be required, however, by some employers. Many excellent fringe benefits can be expected in addition to the regular salary.

References: Graphic Arts Technical Foundation (GATF) – *Careers in Graphics Communications*

International Typographical Union (ITU) – various union publications

Procedure: Read the assignment. Be prepared to discuss it in class.

Assignment: Read the Classified section of a local newspaper. Mark the want ads in the Graphic Communications field, such as printing, typography, mechanical artwork, camera, pasteup, forms design, computer typesetting, IBM Composer operation, Varityper, and offset press operation. Bring the marked-up section to class.

UNIT 2 – SHOP RULES AND SAFETY

A. Shop Safety

Objectives:

1. Be able to recognize your responsibility for safe shop operation.
2. Be able to list and discuss all shop safety rules.
3. Be able to report accidents according to set procedures.

Materials:

1. List of student responsibilities
2. List of shop safety rules
3. Fire Prevention rules
4. Work aprons and work gloves

Procedure:

1. Read the list of student responsibilities.
2. Study the shop safety rules. Bring the list home. Discuss the rules with your parents or guardians, and have one of them sign it. You sign it also, and return it to your instructor. (A student *may not operate any machinery* until the signed list of safety rules is returned.)
3. Sign receipt for work apron.

Assignment:

1. Prepare a list of five potentially hazardous areas in the shop.
2. Return the signed list of safety rules.
3. Study the rules on fire prevention and be prepared to discuss them.

B. Student Responsibilities

1. Complete all assignments accurately, neatly, and thoroughly, as they do in industry.
2. Students should be neat, ready to work every day, and on time.
3. Work aprons must be worn at all times. Rubber gloves must be worn when handling chemicals and when cleaning equipment.
4. Shop safety rules must be observed at all times.
5. Any unsafe practices or conditions, malfunctioning equipment, or electrical shocks experienced *must be reported at once to the instructor.*
6. Students are not permitted to leave the classroom without first obtaining the instructor's permission.
7. Tools must be returned to their proper places after use. No tools may be removed from the classroom.
8. No food or chewing gum is permitted in the classroom. SMOKING IS PROHIBITED.
9. Students are expected to remain in the assigned work areas and may not interfere with the work of other students.
10. All tools and equipment must be kept in good condition.

The observance of good safety habits is the responsibility of each student. Safe performance is an important part of the student's grading and is reflected in achievement reports.

The instructor is present to assist the student in learning the trade, not to act as policeman or disciplinarian. The good work habits acquired in school carry over to the employment position. **Be responsible**. Perform well and acquire the skills you will need for the career that awaits you.

UNIT 2 – SHOP RULES AND SAFETY

C. Rules for Shop Safety

1. Running or boisterous behavior is not permitted.
2. Throwing objects of any nature will not be tolerated.
3. Machines may *not* be left unattended.
4. Never place hands on moving rollers or equipment.
5. Work aprons are to be worn on the job. Work gloves are to be worn when handling or cleaning equipment.
6. Hands are to be thoroughly washed with soap and water after using chemicals.
7. Short sleeves or rolled-up sleeves are to be worn when working with moving equipment.
8. Long hair should be fastened when operating machinery.
9. Place of work should *never* be littered and should be cleaned up after completion of work.
10. Never hand a razor blade to another student – place the razor on a flat surface.
11. Power may not be turned on without the instructor's permission.
12. Report malfunctioning equipment to the instructor *immediately*.
13. Heavy objects should not be placed on the glass surfaces of light tables; don't sit on these tables.
14. *All* students are *required* to report accidents and violations of these safety rules and other safety regulations to the instructor.

Any student failing to comply with class safety rules may be suspended for the student's own safety and for the safety of other students.

I have read and understand the above safety regulations for the shop. I (the student) pledge to abide by these regulations.

_____ _____

Student's signature Signature of Parent or Guardian

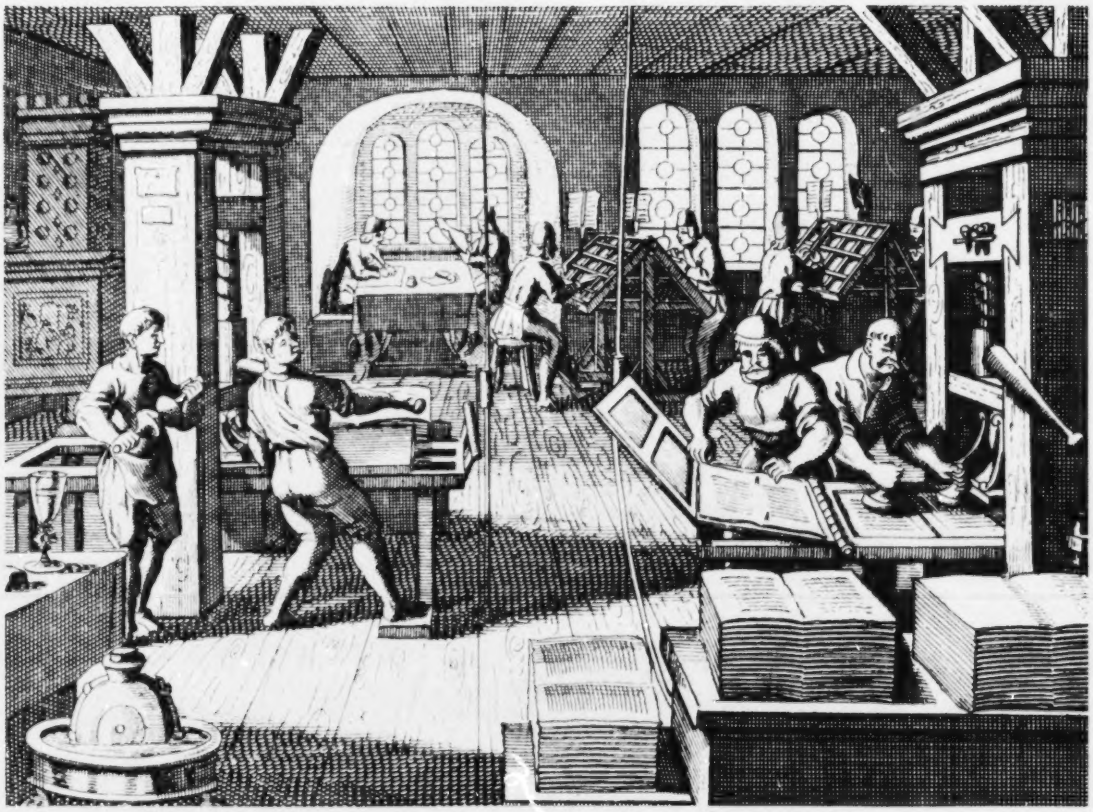
D. Fire Prevention

Fires are the cause of massive loss of life and property in industry, home, and school. Most fires can be prevented by following simple fire-prevention practices. Each student should consider himself or herself a fire fighter. Be alert to potential dangers.

Along with actions taken to prevent fires, the student should be aware that poor housekeeping is a major reason for disastrous results when fires do break out. The following housekeeping and fire-prevention rules will be rigidly enforced.

1. No smoking in the classroom at any time.
2. All work areas are to be cleaned up at the end of the day.
3. All inflammable materials are to be capped.
4. All inflammables are to be kept in fire-safety cabinet.
5. All waste paper is to be placed in waste baskets; all soiled rags in fire-safety cans.
6. Papers or objects on floor must be picked up promptly.
7. Know the location of fire extinguishers and sand buckets.
8. Fire-prevention equipment is *not* to be used for any other purpose.
9. At fire alarm, close all windows and doors.
10. At fire alarm *all individuals* go to the nearest exit in an orderly manner.
11. Fire marshals, assigned monthly, will be responsible for leading students out when fire alarm is sounded.
12. Absolutely no talking is permitted during a fire drill.

INTRODUCTORY
WORKFLOW
COPY PROCESSING



An Early Printing Shop

UNIT 3 – HISTORY AND TECHNICAL BACKGROUND

Objective:

1. Be able to summarize the history of Graphic Communications from earliest times to the present.

2. Be able to describe the principal ways in which images for reproduction are produced today.

Information: **Early Records**

Man's earliest efforts to make a record of his life has been dated back some 30,000 years to the wall paintings found on cave walls in southern Europe. Over the centuries more complex writing was developed. Pictographs were believed to be the earliest form of writing. They included **cuneiforms**, developed some 5000 years ago by the Persians, and **hieroglyphics**, by the Egyptians. Words were represented by pictures suggesting objects. Egyptian hieroglyphics, for example, represented water with a wavy line: ~~~

Cuneiform Writing

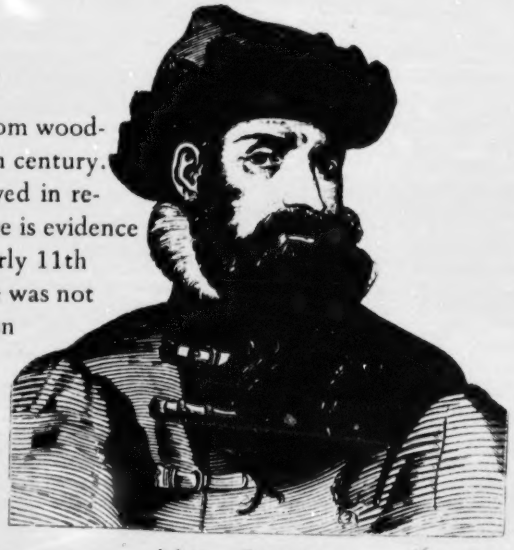
Egyptian Hieroglyphics

Discoveries in 1977 indicate that 5000 years before the development of pictographs, the Sumerians used clay objects of various shapes (spheres, disks, cones) to represent abstract ideas. Impressions of these tokens on clay followed, and could be considered the very earliest form of writing.

About 1500 BC, the Phoenicians developed the first formal alphabet using *letters* to represent *sounds*. These writings, however, cannot be considered printing as we define it. The development of printing required new discoveries and inventions.

Gutenberg and movable type

Printing in its earliest form was done from wooden blocks in Japan and China, in the 8th century. Both illustration and message were carved in reverse by hand, a laborious process. There is evidence of printing from movable type in the early 11th century in China, but since the language was not too well suited to their use, the invention was not really used. However, printing as we know it really started in 1440. It was in 1440 that Johann Gutenberg invented movable type in Europe. Until Gutenberg's invention, books were copied by hand, usually by the monks in the monasteries of Europe. Gutenberg cut the letters and numbers in relief from wood. Then ink was applied to the wood, and paper was impressed on the wood. Gutenberg actually started the printing industry and thereby revolutionized the spreading of knowledge.



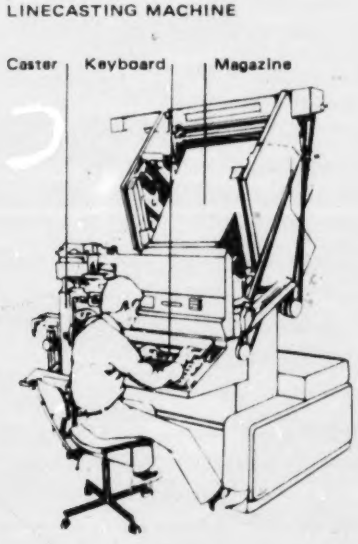
Johann Gutenberg

Paper and ink

Paper and ink were already in use when Gutenberg's type appeared. The Chinese are also credited with the invention of paper, in the first century A.D. By the 14th century, paper had been introduced throughout the Western world. Again it was the Chinese who perfected an ink, using lampblack, in the fifth century A.D. Tacky inks, essential to printing, were used in Europe when Gutenberg's invention arrived on the European scene.

Typesetting: Hand-Set and Machine-Set

Following Gutenberg's invention, many individuals made valuable contributions to Graphic Communications, mainly in the form of the development of new and pleasing typefaces and the casting of metal type. However, for more than four hundred years after Gutenberg, all type was set by hand. Early printing presses were little more than wine presses converted to the task of printing. As more automatic presses were developed with capabilities of producing many copies a minute, an automatic method of setting type was needed. Many of the early type-setting machines worked fairly well, but none were practical for commercial use until the invention of the **Linotype** by **Ottmar Mergenthaler** in 1886. This machine produced slugs or lines of type several inches in length.



Mergenthaler Linotype

Almost all printing, from Gutenberg's day on, was produced by letterpress – type in which the letters were raised above a non-printing surface. The letters received the ink and transferred the ink directly to the paper. Hand-cutting, similar to linoleum blocks, permitted the printing of illustrations. Later, the development of engravings allowed the printing of more refined illustrations and photographs. The printer, assembling type and illustrations on a stone (a waist-high, iron-topped table) made up individual pages with the required line spacing preparatory to going to press.

Lithography

About 1800, **Alois Senefelder**, an actor, discovered the basic principle of lithography (writing on stone). Senefelder sketched a design with a greasy substance on a porous stone. He moistened the entire surface with a gum arabic and water mixture and rolled on a greasy ink. The ink coated the design, but did not spread over the moist blank areas, as the water repelled the ink. As you well know, water and oil do not mix. A clean impression of the design was made when paper was pressed against the surface of the stone, offsetting the image. Later inventors adapted Senefelder's discovery to high-speed, round-cylinder presses.

Intaglio

Printing from a depressed surface is referred to as intaglio printing. Intaglio is an Italian word meaning "cut into." The first instances of this method can be traced to Italy some time in the mid or late 15th century. Ink is spread onto the surface of the cut-out block and then wiped away from the surface, leaving ink in the depressed area. When paper is applied, the ink from the cut-out area adheres to the paper. Copper-plate engraving is an example of this printing method; rotogravure, the modern high-speed reproduction method, is another example.

Silk-screen printing

The silk-screen process uses a screen made of a special silk or wire mesh. On this screen, material is fastened to block out areas that are not to print. Ink is forced through openings in the screen by means of a squeegee, depositing the ink on the material below. The method permits reproduction on solid objects as well as on flat surfaces. Silk-screening has been automated over the years. It is in wide use today.

Electrostatic printing

A recent development is the electrostatic printing technique. It makes use of the fact that opposite electrical charges attract each other. It is widely used today in office duplicating work where only a few copies of the original are required. Xerox is the best known of these copiers.

Image generation

It is necessary to clearly differentiate between reproduction (the duplication of many copies) and the generation of an image (preparation of the material to be reproduced). The generation of an image usually involves the setting of type, but it may also include a photograph, a drawing, or decorative material, all of which are to be reproduced in multiple copies. There are two main categories of typesetting: **hot type** and **cold type**. Let us examine these two categories.

Hot type

Foundry type – single characters – and type slugs and paragraphs as produced by the Linotype, Intertype, and Monotype machines, are all examples of **hot type**. The type is cast from molten (hot) metal. Until very recent times, this type was the only method of typesetting.

To reproduce from hot type, it is possible to print directly without intermediate steps. The ink is applied to the surface of the type, and paper is pressed against the inked type surface to obtain a copy.

With the introduction of high-speed presses requiring cylindrical printing surfaces, it became necessary for the type to be wrapped around the cylinder. Then an intermediate process was required – the production of a papier mache duplication of the type. This duplicate was then curved to the shape of the cylinder, and a rounded metal duplicate (or stereo) of the original type was cast and attached to the press cylinder. Since hot type is raised above the surface, all drawings and illustrations used with it have to be processed by the engraving method. They must be produced in metal and mounted on blocks of wood the same height as the type.

Hot type as an image may be used for reproduction by the letterpress method, by the intaglio method (printing from a depressed image), and by lithography, providing a clean white sheet (repro) is first drawn from the inked type.

Cold type

As opposed to hot type, image generation by cold-type methods does not involve any heat process. Cold-type composition is produced by a number of methods:

Strike-on: This involves a typewriter or similar keyboard. The image is transferred to paper by striking a key bearing the image of an alphabetical or numerical character. The key strikes through a carbon ribbon, leaving an impression of the character on a paper surface. The typewriter was the original strike-on method. More recently the Varitype, the IBM Composer, and the Friden Typing System have permitted the use of a variety of type faces through interchangeable type-balls or discs. Both the IBM Composer and the Friden are capable of automatically forming lines of the proper length.

Phototypography: As early as 1895, a practical invention for photographic composition was patented by **William Friese-Greene**, the English cinematographer, but was abandoned for lack of financial support. In 1947, the Intertype Company brought out its **Fotosetter**, the first keyboard-operated filmsetting machine in regular production. Following this development, a host of companies produced variations and refinements of phototypesetters, including Mergenthaler's **VIP**, the **Photon Textmaster**, Compugraphic's **CompuWriter**, and AM's **Compset/500**, among others. All of these machines utilize the photographic process for generating an image. Recently, phototypesetters have been "wed" to computers as a means of vastly increasing typesetting capabilities in terms of speed of setting even complicated material and programed hyphenation of words.

Most of the typesetting by photography permits variations in the sizes of type from a single font through the use of multiple lenses. Other advantages over other composition methods include speed of setting, with resultant money savings; use of the standard typewriter keyboards, permitting easy training of operators; and, with tape attachments and video-editing terminals, a simplification in storage and proofreading of typeset copy.

Mechanical composition includes hand-drawn lettering and illustrations, clip art such as pre-drawn illustrations, borders obtainable from paper manufacturers, and transfer type (prepared sheets

containing complete alphabets transferable to paper by rubbing). This area is constantly expanding, with many additional designs and effects available on pressure-sensitive tapes.

Camera

The lithography process lends itself to photographic reproduction. It bypasses the need for engraved cuts used in letterpress. New films, cameras, aluminum plates, and processing chemicals have permitted the introduction of process photography and the modern offset lithography we have today.

Reference: International Paper Company, *Pocket Pal*, 11th Edition, 1974, pages 8-20, 28-36, 38-60, 62-70.

Assignment: Read this unit and the reference. Then answer the following questions.

1. What is the difference between image generation and the various methods of reproduction of printed matter?

2. Describe the contributions of Gutenberg, Senefelder, Mergenthaler, and William Friese-Greene to Graphic Communications.

3. On what principle is lithography based?

4. How are letterpress and intaglio alike? How are they different? Which method does linoleum-block printing utilize?

5. Television uses image generation in the form of pictures for communication. What other image is generated by the television camera?

6. Why did photography lend itself to the lithographic process?

7. Bring to class a printed piece on which you have indicated type matter, illustrations, borders and decorations, or photographs.

UNIT 4 – WORK FLOW IN A MODERN SHOP

Objective: Be able to describe the relationship of the Prep Department to the other departments in a typical shop.

Information: The worker in the Prep Department is very important. A project starts out in the Prep Department, so the accuracy of the Prep worker can insure the proper printing of the work. Careful planning and cooperation among the different areas is necessary if the shop is to function properly. To obtain a good picture of the interrelationship of each department, let's examine the responsibilities of each:

Sales Department

Sells a prospective client on the ability of the shop to produce an excellent printed job at a competive price. Accepts the order and gives it to the Production Department with the client's instructions.

Production Department

Accepts the order, discusses the client's requirements with the salesman, and pursues the following actions:

1. Estimates the job.
2. Initiates the order (upon client's approval to proceed).
3. Writes up the job ticket.
4. Distributes the work.
5. Orders paper stock; makes outside purchases.
6. Calculates paper cutouts.
7. Receives proofs of typeset work and forwards them to the client for approval.
8. Upon client's final O.K., puts job into work schedule.
9. Follows up work in shop.
10. Checks for quality (quality control).
11. Arranges for delivery of completed work.
12. Files records and samples.

Preparatory Department

1. Formats the typesetting.
2. Typesets copy.
3. Proofreads copy; sends proof to Production Dept.
4. Makes corrections on copy as necessary.
5. Pastes up copy.

6. Prepares layouts when required.
7. Does camera work.
8. Strips up flats.
9. Prepares "blue" when required.
10. Transmits job to Mechanical Department (after O.K. is received from Production Department).

Mechanical Department

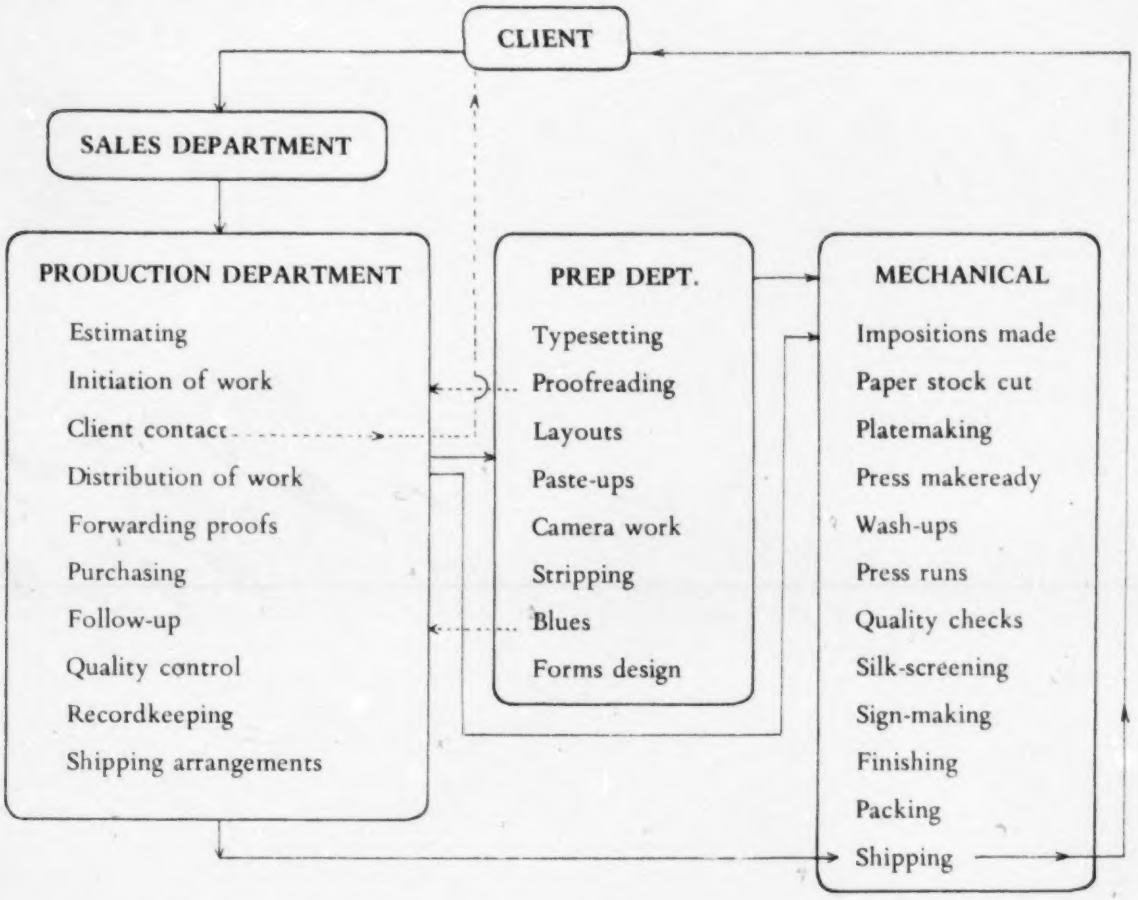
1. Prepares impositions (BINDERY).
2. Cuts paper for press (BINDERY).
3. Burns plates (PRESSROOM).
4. Makes press ready; washes up press (PRESSROOM).
5. Runs job (PRESSROOM).
6. Continually checks for quality (PRESSROOM).
7. Does finishing operations: trimming, drilling, padding, folding, collating, and binding (BINDERY).
8. Sets hot type (SHOWCARD & PLATEN PRESS).
9. Silkscreens (PRESSROOM).
10. Packs and ships completed work (BINDERY).

The above is a basic flow (see the chart on the next page), but it should be realized that practices vary from shop to shop depending on the size of the shop and the type of work handled. A very large shop will have further work breakdowns. In a one-man operation, the proprietor will handle all of the operations, with the possible help of an assistant.

Procedure: Tour the shop and observe the flow of work. Note how it has been designed for efficient operation.

Assignment: List the functions of the preparatory department.

Work-Flow Chart of Typical Plant



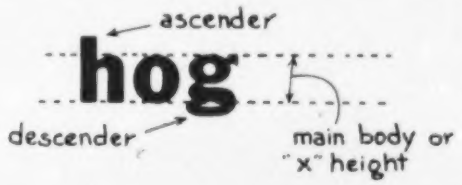
UNIT 5 – TYPOGRAPHY

A. Terminology

Objective: Be able to define the major terms used in the Graphic Communications.

Information: Below is a list of many terms used in the shop. It is *not* a complete shop vocabulary. When you find a new term not listed here, make a note of it, find its meaning, and add it to this sheet. While this listing concerns itself with the area of image generation, it also includes some terms in other areas which overlap the typographic area.

ascender – that part of a type character which rises *above* the main body of type. (See "descender," "main body," "x height.")



cap height – measurement of an upper case type character.

casting – (1) the step in automatic typesetting (following the setting of individual characters) in which the machine exposes the full line on photographic paper.

(2) In a Linotype operation, the individual matrices are gathered in a complete line, spaces inserted, and the line moved to a mold opening. It is *cast* when molten lead is forced into the assembled matrices.

(3) In a copyfitting operation, the copyfitter is said to *cast* manuscript to fit a specific layout.

cold type – typesetting by any method which does *not* make use of hot metal, engravings, or wood type, e.g., phototypography.

copy – the manuscript as received from customer for typesetting, including customer's layout.

copyfitting – the procedure whereby typewritten copy characters are counted and converted to the area in which the selected type face of a particular size will fit.

25

descender – that part of a type character which falls *below* the main body of type. (See "ascender," "x height.")

display – large and special type faces used for headings and special effects.

dummy – a page-by-page layout for a pamphlet, magazine, or book, as a guide for the printer. Sometimes a printer does not receive a dummy until after galley proofs have been pulled. A dummy that has been made up from galley proofs is called a paste-up dummy or simply a paste-up.

em – the square of a type body. So named because the capital M in early fonts was usually cast on a square body.

face – a style of type

film positive – photographic type production in which black (right-reading) characters are produced on clear acetate.

folio – (1) a page number
(2) a sheet of paper that has been folded once
(3) a large book, about 12 by 15 inches.

font – a complete assortment of type of one size and face

galley – a raw type as it comes from the typesetting machine

glassine – proof produced on transparent sheet to afford artist or pasteup person opportunity to check position

gothic – sans serif type faces

hot type – type cast from molten metal. Category includes foundry type, engravings, and wood type as well as Linotype, Monotype, Ludlow, etc.

italic – type in which the letters slope forward, in distinction from upright letters. Usually used for emphasis in text matter. Words underlined in manuscript copy are set in italic unless the printer is instructed otherwise.

justify – spacing out of lines uniformly to create even left and right columns. Justifying is automatic on the CompuWriter I and the Compset 500.

key – to code copy to a dummy by means of symbols, usually letters.

layout – the drawing or sketch of a proposed printed piece. A "comprehensive" or "comp" is a more elaborate layout.

lead – space between lines (leading: insertion of lead) (Pronounced LED)

leaders – rows of dashes or dots used to guide the eye across the page, as in a table of contents (Pronounced LEED erz)

line copy – any copy suitable for reproduction without using a screen.

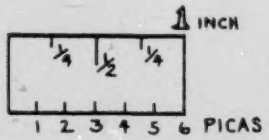
machine-set – typesetting produced by automatic equipment.

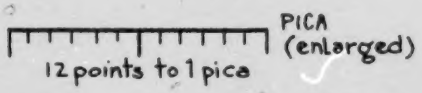
main body (or "x height") – that portion of a type character exclusive of ascenders and descenders.

mechanical (also referred to as "pasteup") –a page or layout prepared as an original, ready for reproduction.

pica – printer's unit of measurement (1/6 of an inch)

point – 1/12th of a pica (72 points equal one inch.)





proof – a trial impression taken from type or plates to check for appearance and/or errors. Proofs are "pulled" at various stages of the printing process.

proofread – the process of reading proofs to catch errors.

quad – blank space used to fill out a line. The term "quad left" is used in filling out a line to the right, such as in the last line of a paragraph

ragged left – copy set with copy justified to the right, but with uneven column to the left. (Opposite is "ragged right.")

repro – reproduction-quality proof, usually produced on smooth white paper.

rule – a straight line ruled by drawing pen as part of a pasteup, or produced automatically on the IBM Composing machine or phototypesetters.

serif – short cross-lines at the ends of main strokes of many letters in certain type faces. Type faces without serifs are referred to as "sans serifs."

unit – on the Compuwriter and Compset 500, the parts of an individual character or space; the wider the character, the greater the number of units

x-height – the height of the main body of type, as with such lower-case characters as a, c, e, m, n, r, s, and x.

Reference: A more complete list of terms is available in *Pocket Pal,* p. 165.

Procedure: Read each of the terms and the definitions listed in the preceding Information section.

Assignment: Study the terms. Be prepared to define them in class.

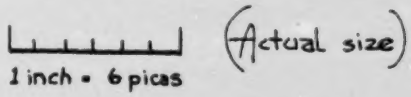
Use the following space to add new terms learned in the course.

B. Type and Space Measurements

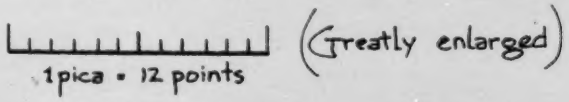
Objective: Be able to describe the measurement of vertical and horizontal space as used in typesetting.

Information: Over the years the printing trades have developed measures to help in the standardization of type faces. These measures take into account the variations in the height and width of the different characters. At the same time typesetting requires standardization of blank spaces, both vertical and horizontal. The two principal measures used in typesetting are the **pica** and the **point**.

The **pica** is equal to one-sixth of an inch (six picas to an inch.)
Note: This is an approximate measurement, since actually 6 picas equal .996 of an inch, but it is sufficient for most purposes in typesetting.



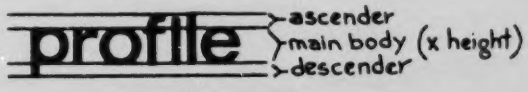
The pica in turn is divided into **points**. Twelve points equal one pica (and 72 points equal one inch: 12 points times 6 picas equals 72 or 1 inch).



In measuring a line of type for typesetting purposes, you must convert from inches to picas. Thus, three inches will equal 18 picas; 4½ inches will equal 27 picas. To simplify computations and copyfitting manuscript, work with picas when figuring the width of a line and with points when computing the height of a column of type.

To understand measurement of type, let's examine the characteristics of some individual type characters for similarities and differences. First we will review the parts of a typical type face.

Lower-case letters consist of one or more parts: the main body or x-height, an ascender, and a descender. These parts are shown in the following sample:



The size of a type face is always measured from the *top* of the *ascender* to the *bottom* of the *descender*. It is easy to remember the word *a*scender (that part of a letter which rises above the main body) by thinking of *a*stronaut – one who goes up or ascends into space. For *de*scender, think of *de*ep sea diver – one who goes down or descends into water.

Here are letters which are **ascenders:**

t d f h k l b

and these are **descenders:**

q y p g j

The following letters have neither ascenders nor descenders. They are **main body** or **x-height** characters:

w e r u i o a s z x c v n m

The above type characters are all *lower case* characters. Capital letters or **upper case** characters never have descenders. Since all upper case letters ascend above the main body of type, in a sense they are ascender characters.

Type size is measured vertically from the top of an ascender to the bottom of a descender. So, 10-point type measures 10 points from the top of an ascender to the bottom of a descender. If we were typing ky, for example, the distance from the top of the k to the bottom of the y would

be exactly 10 points. Similarly, 12-point type would measure 12 points from top to bottom. Since 12 points equals 1 pica, or 1/6 of an inch, 12-point type is 1/6 of an inch high.

We should remember that lower case characters consisting of main body letters (such as x, c, m, etc.) *will be much smaller in height, since they lack both ascenders and descenders.* All CAPS will be smaller in height since they lack descenders.

Type characters used on typesetting machines contain a very slight amount of space below the descenders. This prevents overprint should a letter with a descender fall directly above a letter (on the line below) with an ascender.

Up to now we have been discussing *vertical* measurements. Now, let's examine *horizontal* measurements of type. On most typewriters, all letters and numbers have the same width (an exception is the IBM Executive typewriter which attempts to simulate typeset characters). If we repeat different letters horizontally, they will fall exactly in line vertically:

```
www
iii
333
```

With printer's type, however, the letters will have different widths; this is also true on the IBM Executive typewriter. The letter w, for example, will be much wider than the letter i. In most typesetting machines, type measurements are in units. A given letter of the alphabet will consist of a certain number of units: for example, a w may consist of 15 units while i may consist of only 5 units. Similarly, the space between words is assigned a given number of units. On the CompuWriter, for example, a space struck on the spacebar measures 4 units in width. A line-up of different letters typeset on a phototypesetter would show that the letters do not line up:

```
www
iii
333
```

Although typesetting on modern machines is by units rather than characters, on most machines it is not important that the operator be familiar with the actual unit values of the different characters. On the CompuWriter I, charts are available for converting picas to machine units, and the operator enters the proper number of units into the machine's memory for a specific operation.

In addition to differences between specific characters within a type font, different type fonts will display different characteristics. A type style may have characters that are very narrow in proportion to their height; such a style is called **condensed**. Or a type style may have characters that are extra wide in proportion to their height; such a style is called **expanded** or **extended**. For example, you may have a Futura type style in regular, condensed, and expanded fonts.

The differences in both height and width of typeset characters is important when you are doing copy markup and copyfitting.

C. Handling the Client's Copy

Objective: Be able to describe the procedure for receiving, processing, and safeguarding the client's manuscript.

Information: The client usually submits rough manuscript (referred to as **copy** by the trade) in double-spaced, typewritten form. The copy is accompanied by a rough layout or dummy, showing where the client wants the placement of text matter, display type, and illustrations on the printed page.

The prep department worker who handles the customer's copy is called the **markup person.** It is his or her job to study the manuscript and dummy, question the client on any unclear instructions, select type faces to be used for text and display matter, and **copyfit** the manuscript copy to fit properly into the areas outlined on the dummy. The markup person must initiate the procedures to safeguard the client's manuscript and dummy. He or she sets up the folder which will hold the client's copy and layout through the various markup, typesetting, and proofing procedures. Each page of manuscript should be numbered in sequence, together with the shop work-order number. Each page of a multipage manuscript also should carry an indication of the total number pages of manuscript. For example, a typesetting job consisting of eight pages would show:

231 – (shop job number)
1 of 8 – (page number and total pages)

Student Activity:

The instructor will give you a number of pages of manuscript copy. Study the copy, question the instructor on any unclear matters, prepare a folder containing the job number and client's name, and place the job number and page and total number of pages in the lower right corner of each page of copy. ALWAYS USE BLACK LEAD PENCIL when placing information on a client's copy or layout.

D. Copy Markup

Objective: Be able to mark up a client's copy.

Information: The typesetter usually has the responsibility for selecting type style, type size, and arrangement for the completed piece. In many instances, however, a client (particularly advertising art departments) will specify the style and size of type to be used. In the first instance, the markup person has the responsibility for selecting a type style appropriate for the piece to be reproduced. In the second situation, the markup person must be sure that the client's instructions are followed as completely as possible. When substitutions are necessary, the client must be advised.

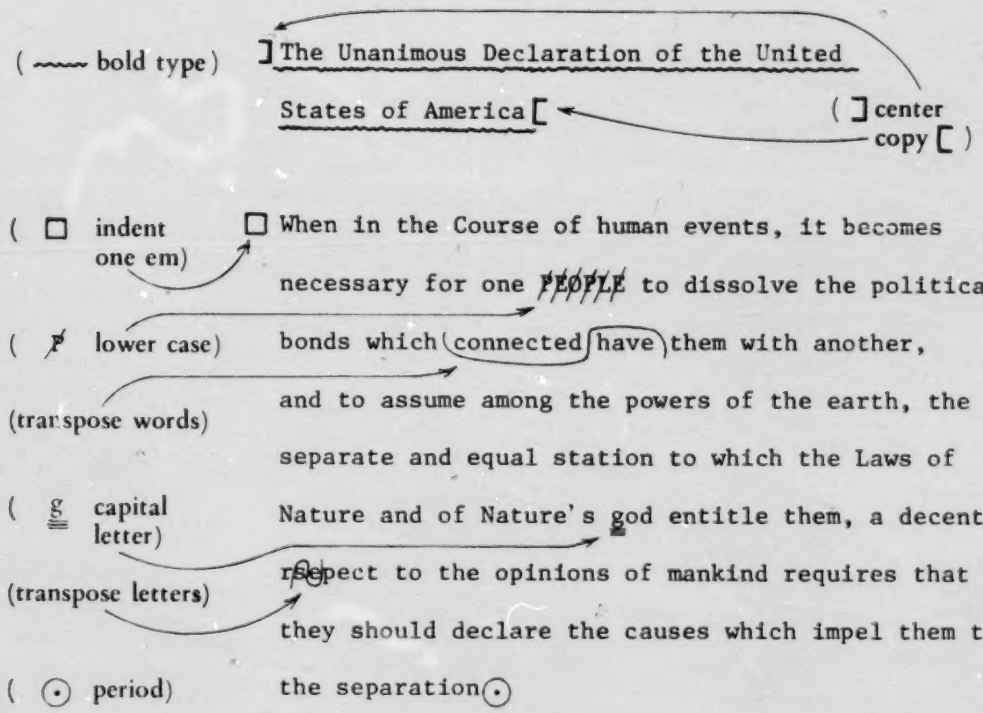
The markup person studies the manuscript and the client's layout, checks the availability of specified type styles, and marks up the copy to indicate to the typesetter:

1. The type style
2. The type size
3. The leading
4. The width to be set
5. Bold or italic copy
6. Upper or lower case characters where the manuscript is not clear.
7. Certain obvious errors in typing.

On the following page is a sample of manuscript copy that was marked up by the markup person. Following that is a sample for the student's own markup.

Example of copy markup

10/12 HELVETICA W/BOLD X24 (Set in 10-point Helvetica with Bold, 2 points of leading to a width of 24 picas)



35

Student Activity

Mark up the following copy, using 12-point Helvetica with Bold, with 1-point leading set to a width of 3 inches. Show an indent of 1 em for the paragraph. The heading, which is to be centered, is to be set in bold type. Correct any obvious errors with appropriate proofreader's marks.

ADDRESS DELIVERED AT THE DEDICATION OF THE CEMETERY AT GETTYSBURG, NOVEMBER 19, 1863

Four score and seven years ago our fathers brought forth on this continent, a new nation, conceived in Liberty, and dedicated to the proposition that all men are created equal.

Now we are engaged IN a great civil war, testing whether that nation, or any nation so conceived and so dedicated, can long endure. we are met on a great battlefield of that war. We have come to dedicate a portion of that field, as a final place resting fro those who here here gave their lives that that nation might live. It is altogether fitting and proper that we should do this.

UNIT 5 – TYPOGRAPHY

E. Type Classifications

Objective: Be able to identify several general classes of type.

Information: There are many ways of classifying type. The following descriptions will help you identify the more common type faces.

Sans serif – unadorned types lacking serifs. A serif is a finishing stroke on a letter or character. (The word "sans" is French and means without, so sans serif is without the serif.)

Roman – the most common of typefaces, containing serifs; the face most often used in books and newspapers.

Script – faces designed to closely imitate handwriting.

Decorative – novelty styles used primarily to obtain special effects and to attract attention.

There are, of course, a number of other classes of type faces, for example, **text** (also known as Old English), **square-serif**, and **modern**.

Text matter is generally machine-set type and is usually limited to roman and sans-serif faces in the smaller type sizes. **Display matter** includes all of the classes of type in the larger sizes (18 points and over) and may be set on the StripPrinter, Typositor, Spectra Setter, or similar phototypesetter, or by the use of transfer type.

Reference: *Pocket Pal* – page 40
Modern Graphic Arts Paste Up – page 42

Procedure: Read the information section and the pages in the reference for examples. Study the type charts posted in the classroom.

Assignment: Sketch sans-serif, roman, and script characters.

Bring in a newspaper page with several advertisements, marked up to show different type classifications.

F. Type Families

Objective: Be able to describe the variations within a family of type.

Information: A complete assortment of any one type face in one size is called a **font**. A font consists of all the lower case (small) and upper case (capital) letters, numerals, and punctuation for the particular face.

Measuring type – We learned earlier that type is measured from the top of the ascender to the bottom of the descender. The ascender, you remember, is the part of a lower case character that extends above the so-called x height (or main body). The descender is the part of a character which extends below the x-height. It is important to realize that the actual height of any letter, whether capital or lower case, is *not* the full point size.

Families – Most type styles come in several variations. That is, the basic characteristics of the different fonts are similar, but there are sharp differences: thin strokes make a **light face**, heavy strokes make a **bold face**, slanted strokes are **italic**, etc. All together these variations of a single style, in the several sizes that are available, make a type **family**.

Another variation within a single family of type is the design of wide or thin styles. Wide-type styles are referred to as **expanded** or **extended**: narrow-type styles are called **condensed** or **extra condensed**.

A FAMILY OF TYPE

Helvetica Light

Helvetica Light Italic

Helvetica Regular

Helvetica Regular Italic

Helvetica Medium

Reference: *Pocket Pal* – page 38, page 42

Assignment:

1. Print the word "joke". Indicate ascender, descender, and x-height (main body).

2. Bring in a newspaper or magazine page containing ads, marked up to show various families of type. Indicate extended or condensed faces, and any other variations within each family.

UNIT 6 – COPYFITTING

Objective: Be able to copyfit simple copy accurately.

Information: Why did you have to learn about type and space measurements and copy markup? This has been preparation for an important task of the copy markup person. She or he must fit typed manuscript so that, when the type has been set, it will fall properly into the area laid out for it. That area is usually established by the client in the layout that accompanies the manuscript.

In copyfitting, these five factors must be considered:

1. The number of individual characters and spaces in the typed manuscript.

2. The number of typed characters that fit into one inch of width –

   An elite typewriter face produced 12 characters to an inch.

   A pica typewriter face produces 10 characters to an inch. (IMPORTANT: Pica typewriter face *does not* correspond to the printer's pica measure.)

3. The **width** and **depth** of the area into which the final typeset copy is to fit.

4. The **size** of the characters of the type face to be set.

5. The **width** of the characters of the type face to be set.

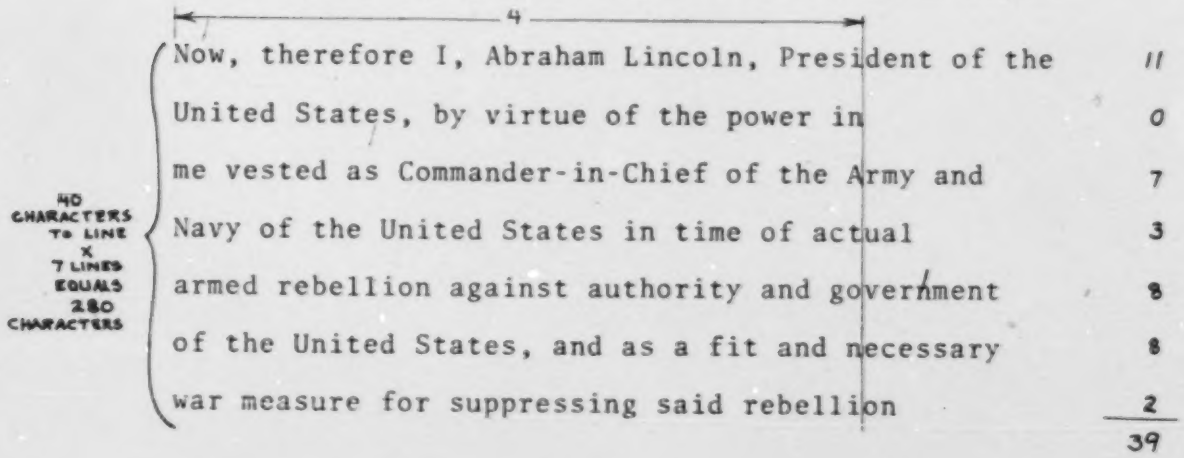
   Most shops will compile charts listing the number of characters (averaged) that will fit into a pica or inch of width. Where such charts are unavailable, the copyfitter will count the number of characters in a particular type face of a particular size.

Now, the copy fitter is ready to begin the copyfitting task.

Procedure: When the markup person receives the client's copy, he/she first marks the copy and layout with the job number and page numbers (See page 26). Next, he/she determines:

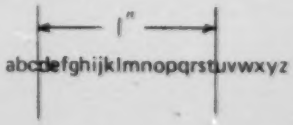
1. The size and style of the typeface to be used.
2. The number of characters of typed matter to the inch.
3. Measurement of the area to be filled with type.

With this information, the markup person first counts the number of characters in the manuscript. He or she does this by drawing a *pencil* line vertically through the copy on the right, at the nearest full inch mark that includes the majority of the typed lines, as shown in this sample:


4
40 CHARACTERS TO LINE X 7 LINES EQUALS 280 CHARACTERS
Now, therefore I, Abraham Lincoln, President of the 11
United States, by virtue of the power in 0
me vested as Commander-in-Chief of the Army and 7
Navy of the United States in time of actual 3
armed rebellion against authority and government 8
of the United States, and as a fit and necessary 8
war measure for suppressing said rebellion 2
39

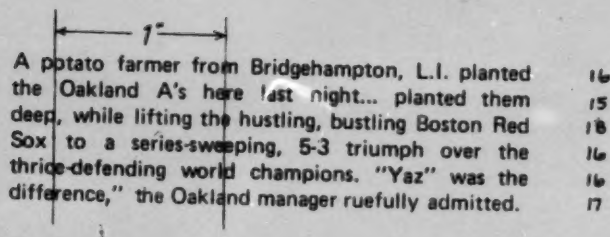
In this example, the line vertically drawn is four inches measured from the left. Since this typewriter produces 10 characters to the inch, we have 40 characters to the 4-inch measured line. Seven lines times 40 equals 280 characters. We next count the characters to the right of the ruled vertical line. On the first line we have 11 characters. (Note: *Spaces between words* as well as *punctuation marks* are counted as characters.) On the second line we have 0 characters. The total number of characters to the right of the vertical rule is 39. Added to the 280 characters to the *left* of the vertical rule gives us a total of 319 characters. These 319 characters must now be converted to the *space* to be filled by typeset characters.

The markup person now consults the chart showing the average number of characters of the particular type style and size that fits into a pica width of space. If there is no chart, the markup person measures a specimen lower-case alphabet of the particular type face and obtains an *average* count of characters to the inch:



17 characters

In the above example (10-point Univers), a count produces 17 characters to the inch. It is important, however, to realize that this is an *average* of the letters. Since upper-case characters and spaces are not included, it is preferable to obtain an average from a *sample text setting:*


1"
A potato farmer from Bridgehampton, L.I. planted 16
the Oakland A's here last night... planted them 15
deep, while lifting the hustling, bustling Boston Red 18
Sox to a series-sweeping, 5-3 triumph over the 16
thrice-defending world champions. "Yaz" was the 16
difference," the Oakland manager ruefully admitted. 17

In this example, counts were taken at random of six lines of typeset copy which included spaces and caps. Counts of one-inch measures within each line produced varying numbers. An average of these six counts produced a figure of 16 1/3 characters per inch. This average would be the most accurate workable character count in copyfitting this particular size and style of type.

We now have two of the factors required for copy-fitting:

1. A count of characters of the typed manuscript, and
2. A character count (characters per inch) of the particular type face and size to be set.

The third factor is the area to be filled with typeset copy. Suppose we are to fill an area 3 inches wide by 1¼ inches deep with 10-point Univers, as in the sample previously shown. We will use the typed manuscript in this unit, which had a character count of 319. Based on a typeset character count of 16 1/3 characters to one inch, we divide 48 (16 X 3 inches) into 319. The result will be 6 + 31. The 6 represents the number of lines that will be produced; the 31 represents the remaining characters. We will have 6 full lines plus a short line, which of course represents an additional full line. So we must fit 7 lines of 10-point type into an area 3 inches (or 18 picas) wide by 1¼ inches deep.

Earlier we learned that 72 points equals 1 inch. Since we have 7 lines of 10-point size type, we actually have 70 points of *depth of type* to fit into 96 points of *depth of space* (1¼ inches = 96 points). Since our copy falls short when set solid (10/10), we add 3 points of leading between each two lines for a total of 21 points. This about fills in the space.

Review: Here is the step-by-step procedure:

1. a. Count the number of typed characters in the manuscript by drawing a vertical line through the copy at the *nearest full-inch* mark that includes the majority of the typed lines.

   b. Obtain a count of the characters to the inch.

   c. Multiply first by the number of inches to the *left* of the vertical line.

d. Then multiply the *result* by the *number of typed lines.*

e. *Add* to this result the total number of characters to the right of the pencil line (plus the number of characters on short lines ending the paragraph).

f. The result is the total character count of the typed manuscript.

2. Obtain a count of the typeset face

a. by referring to a chart supplied by the type founder, or

b. by actually counting a lower-case alphabet of the desired typeface in the specified size, or

c. by averaging the character count in several 1-inch sections of printed copy.

3. Using this formula, find the number of lines required.

$$\frac{\text{Total manuscript characters}}{\text{No. of typeset characters for total width needed}} = \text{Number of lines}$$

4. Convert the number of lines into points (size of type X number of lines), e.g.,

12-point type X 12 lines equals 144 points.

5. Convert the depth of space to be filled into points, i.e.,

2 inches X 72 points to an inch equals 144 points.

6. Compare the two results (#4 and #5).

7. If type fails to fill the required depth of space, add leading to fill out the space. *If type falls deeper* than the space to be filled, it will be necessary to choose either a smaller type face or a more condensed type face.

Student Activity

Using 12-point Helvetica to be set to a measure of 18 picas by 2 inches deep, copyfit the following passage:

In the late summer of that year we lived in a house in a village that looked across the river and the plain to the mountains. In the bed of the river there were pebbles and boulders, dry and white in the sun, and the water was clear and swiftly moving and blue in the channels. Troops went by the house and down the road, and the dust they raised powdered the leaves of the trees. The trunks of the trees too were dusty, and the leaves fell early that year, and we saw the troops marching along the road.

(From "A Farewell to Arms" by
Ernest Hemingway)

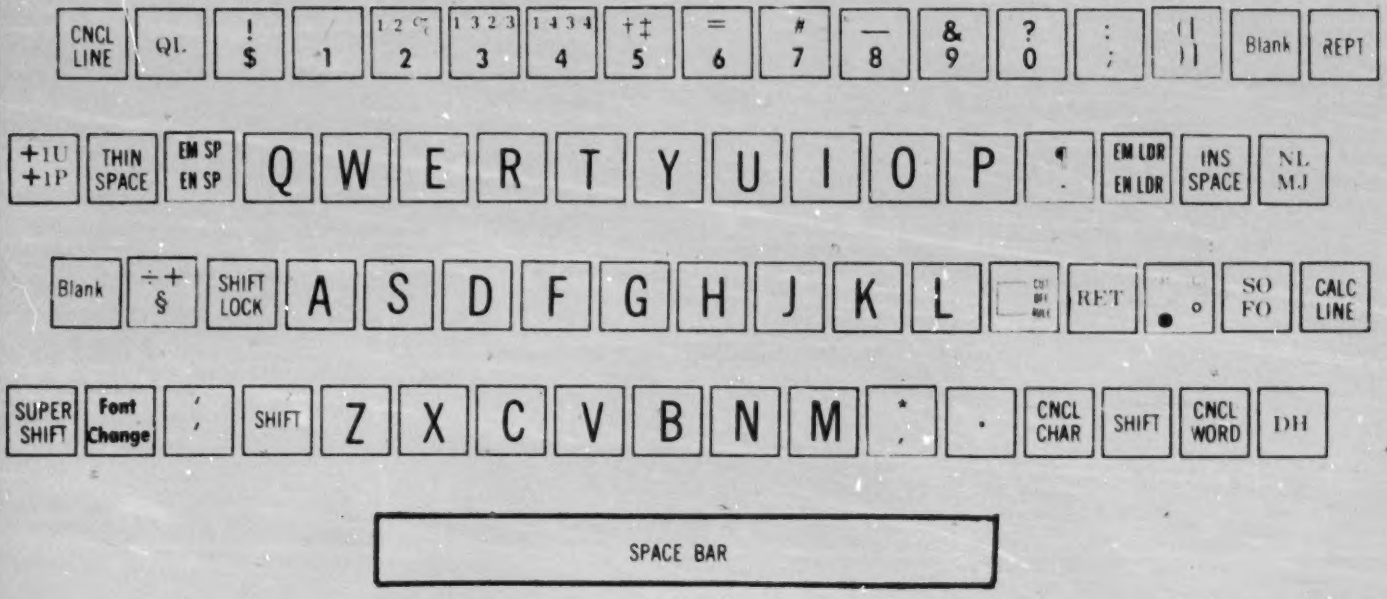
The CompuWriter I

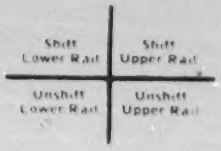
A Compugraphic CompuWriter Model

CompuWriter/CompuWriter Junior Keyboard Layout

BOOK AND COMMERICIAL ARRANGEMENT No. 2

(Standard Arrangement for CompuWriter Junior)





ABBREVIATIONS

CNCL LINE– Cancel line

QL– Quad left

RPT– Repeat

+1U– Plus one unit (shift position)

+1P– Plus one point (unshift position)

EN LDR– En leader

INS SPACE– Insert space

NL– No lead (shift position)

MJ– Multiple justification (unshift position)

EM LDR– Em leader

SO– Space only (shift position)

FO– Flash only (unshift position)

CALC LINE– Calculate line

UR– Upper rail

CNCL CHAR– Cancel character

CNCL WORD– Cancel word

DH– Discretionary hyphen

UNIT 7 – THE COMPUWRITER I

A. Parts and Functions

Objective: Be able to describe the component parts of the CompuWriter I and tell what each does.

Information: The CompuWriter I is a direct-entry photo composing machine. It has the capability of setting various type faces by means of photographing individual type characters on photographic paper. The machine can set type automatically justified, centered, or tabulated. It also has the capability of setting type twice the size of the original font.

The following are the major sections of the CompuWriter I.

1. The keyboard features a standard typewriter-key layout with all the usual alphabetical, numerical, and punctuation keys. It also has function keys which program the various spacing, justification, and leading functions.

2. A rotating wheel holds the film font. In a separate container, a width card corresponding to the type font directs the machine to properly space to the width of the particular type face used.

3. A beam of light from a high-intensity bulb flashes the image of each type character through a lens onto photographic paper.

4. A carton contains the photographic paper, which feeds into a light-tight cassette.

5. A panel contains:

   a. Thumb counters for placing desired width measurements into the machine's memory.
   b. Leading switches to indicate vertical spacing.
   c. A display panel showing the copy being set.
   d. A switch button to activate the machine.
   e. A button for continuous leading at beginning and ending of a typesetting program.

6. A series of belts and pulleys is located at the rear of the machine. They control the width setting of the particular type in use.

Doubling type size is achieved by placing a baffle in front of the same-size lens (1X) and exposing the double-size lens (2X). A switch located in the pulley-and-belt compartment must also be moved to the 2X position.

A separate machine, the CompuKwik, is used for processing the exposed photographic paper. This machine is a stabilization processor; a mixture of activator and stabilizer is pumped into a pan. A series of rollers transports the exposed paper, providing a printout of the typeset copy.

Student Activity

The instructor will point out all of the major features of the CompuWriter I and will demonstrate the operations. Now, step by step, repeat those operations:

1. Insert photographic paper; turn on power.
2. Lead in the paper.
3. Insert film font.
4. Insert width card.
5. Insert belt and pulley appropriate to type font.
6. Make sure baffle covers the 2X lens.
7. Make sure rear switch is at the 1X-size position.

B. Pre-Operating Procedures

Objective: Be able to do all pre-operating procedures on the CompuWriter I.

Information: Each time the operator starts to operate the CompuWriter I, a sequence of checks must be followed. A previous operator may have been performing different functions. Unless all machine areas are checked, the operator's typesetting may be wasted. For example, if the operator sets the baffle for same-size production and fails to notice that the rear switch is at the double-size position, no image will appear on the photographic paper. These are the preoperating checks:

1. Rear switch at the correct-size position
2. Correct pulley and belt inserted
3. Baffle covering the lens *not* to be used
4. Photographic paper inserted
5. Film font and correct width card inserted
6. Machine primed
7. 4 to 5 seconds of continuous leading to feed photographic paper into the light-tight cassette

Student Activity

Using 10 point Helios w/bold, follow the pre-operating procedure, making the checks discussed above.

UNIT 7 – COMPUWRITER I

C. The Keyboard Console

Objective: Be able to describe the functions of the various parts of the keyboard console panel of the CompuWriter I.

Information: An examination of the keyboard of the CompuWriter I shows a typical typewriter keyboard, but the console actually is far more sophisticated.

As with a typewriter, by using the shift key we are able to obtain upper-case characters. The shift key, since it does not produce a type character, may be said to perform a function. Additional keys perform other functions:

1. **Rail Change** – changes from one type font to another.
2. **Quad Left (QL)** – throws all blank space to the *right*.
3. **Insert Space (IS)** – places space at desired point.
4. **Multi-Just (MJ)** – tabulating key: throws type to next right column.
5. **Plus 1 Unit (+1U)** – adds a unit of horizontal space when keyboard is in the shift position.
6. **Plus 1 Point (+1P)** – adds a point of vertical space when keyboard is in the unshift position.
7. **Return Key (RET)** – returns the carriage to the beginning of the next line, activates the photographic operation, advances the paper.

Additional function keys are included on the keyboard and will be discussed as future projects are discussed.

Line-Length display is in the upper left of the console. It prints out the number of units programed for a particular typesetting. This number counts down as type is set.

Also at the left are the following:

1. **Character-Display panel.** – This panel displays the individual characters as set and also a symbol for each function programed. Since lower case letters are displayed only in the upper case, a symbol in the form of an arrow indicates the correct form of the letter.

2. **Shift and Rail indicators.** – Lights inform the operator of the programed shift position and the font in use.

3. **Overset Light.** – Light informs operator that a particular line has been overset.

4. **Out-of-Film light.** – This light goes on when the photographic paper is exhausted.

5. **Continuous Leading.** – When depressed, this button will feed photographic paper into the cassette.

6. **Line Display.** – Depressing this button will give the operator a character-by-character printout of the line already set.

7. **Line Counter.** – The counter just above the keyboard registers the number of lines set. A button below the counter will restore the count to zero when depressed.

At the right of the machine on the console are the following function aids:

1. **On/Off switch.** – Turns power on or off.

2. **Prime button.** – Clears the machine of all extraneous matter from the CompuWriter's memory circuits.

3. **Line-Length counters.** – These thumbwheels set the desired line length, as measured in units.

4. **Leading switches.** – This series of switches programs the leading for a particular setting.

Student Activity

Using teacher-supplied printed material, point out the keys, lights, and switches that affect each portion of the material.

D. Preliminary Operating Procedure

Objective: Be able to produce a short developed strip of typeset copy on the CompuWriter 1.

Information: Before beginning a typesetting assignment, it is important that the operator follow a sequence of steps and checks. These procedures should *always* be followed at the start of each assignment.

Given this typical assignment:

Set a column 3½ inches wide, justified, using 10/12 Helios with bold.

The operator will perform the following procedures step by step.

1. Obtain the film font and its corresponding width card.
2. Make note of the *set* size. In the above example, the set size is 11.
3. Insert the film font on the font wheel and the width card into its compartment.
4. Place the lens baffle *over* the 2X lens.
5. Check the 1X unit chart for the appropriate pulley and belt. (Based on 11 set size, the #11 pulley and the #140 belt would be used.)
6. Insert the pulley and belt, making sure the pulley screw is *tightly* fastened.
7. Move lens switch to the 1X position.
8. Convert 3½ inches to picas (21 picas in the example).
9. Refer to the 1X Unit chart. Under the 11 set column, find the unit count for 21 picas. Enter that count in the machine by turning the thumbwheels on the Line-Length Counters.
10. Raise leading switches to a total of 12 to meet the specifications of the assignment.

11. Check for justification switches in the justification mode.

12. Prime the machine.

13. Using the continuous-leading button, feed paper into the cassette for 3 seconds.

14. Make a dummy setting of any three lines of copy to make sure that the machine is operating properly.

15. Feed paper into the cassette for 2 seconds.

16. Develop the paper in the CompuKwik, checking for correct width, leading, and quality.

Student Activity

Perform the procedures outlined above, step by step, to produce a developed strip of typeset copy.

E. Compukwik

Objective: Be able to process the exposed photographic paper on the CompuKwik.

Information: The CompuKwik is a stabilization processor that makes it possible to develop phototypesetting paper in a lighted area. Operation is simple, but operators should take several precautions, since the machine uses caustic chemicals. Hands should be washed with soap and water after processing the photographic paper. Rubber gloves should be worn when cleaning the assembly, and care taken to avoid splashing chemicals on skin or eyes.

Student Activity:

1. Lead in exposed paper for 3 seconds.
2. Remove cassette from CompuWriter.
3. Place cassette in CompuKwik.
4. Turn CompuKwik power on.
5. Fold over corners of photographic paper.
6. Push paper between rollers, quickly closing light-tight cover.
7. Grasp developed paper promptly as it emerges from the machine to avoid pull-back into the rollers.
8. It is advisable to fix the developed paper in a hypo solution to prevent paper's yellowing. After fixing, the paper should be rinsed in water and dried.

F. Setting Justified Matter

Objective: Be able to typeset a short, simple article, following specific instructions.

Information: Justification is the spacing out of lines of type so as to obtain even left- and right-hand margins. Normally, when typing on a typewriter, right-hand line endings are uneven, giving an irregular, ragged appearance, as in this example:

> The famous lawyer, Rufus Choate, listening to
> foreign-language grand opera in New York, had told
> his daughter to be sure to let him know when to
> laugh or cry or just sit still and keep cool.
>
> Carl Sandburg, "Abraham Lincoln"

The CompuWriter (or any phototypesetter) is capable of automatically justifying each line. This is possible because the typesetter is programed to *distribute* excess space evenly between all of the words on the line. Should a word not fit within a predetermined width, the word is automatically *moved to the next* line. The *space* that would have been occupied by the shifted word is distributed evenly along the line, increasing each of the previously set spaces by a small amount. This same operation applies to words which would partially fit on the line; in such cases the part of the word that would fit on the original line is shifted to the next line, and the space of that word-part is distributed along the line.

In the following example, the rectangles represent space to be distributed. The ✓ represents the normal spacing between words, which we will call the **interword spacing.**

14 picas

(1) The✓famous✓lawyer,✓Rufus✓Choate,
(2) listening✓to✓foreign-language✓grand opera
(3) opera✓in✓New✓York,✓had✓told✓his daughter
(4) daughter✓to✓be✓sure✓to✓let✓him know
(5) know✓when✓to✓laugh✓or✓cry✓or just
(6) just✓sit✓still✓and✓keep✓cool.

Let us examine the justifying operation in the above example:

1. The line comes exactly to the right margin of the 14-pica column. Great.

2. The word "opera" would not have appeared on the second line, but a couple of units of the interword space would have spoiled the even right-hand margin. So the machine distributes those units among the first few words of the line.

3. Here the entire interword space must be distributed among the words on the line. The whole word "daughter" goes on the next line.

4. The letters "o" and "w" of "know" do not fit on the line. The machine will move the whole word to the next line and will distribute along the line the interword space and the space occupied by the "k" and the "n" as well.

5. The end of the word "just" does not fit on the line. Again, the machine will transfer the whole word to the next line, and distribute the interword space plus the spaces of the letters "j", "u," and "s."

6. This line ends the paragraph. Since the machine's intelligence is limited, it is unable to recognize a paragraph ending. It is programed to distribute all the remaining space on the line. Since this would present a very awkward appearance, it is necessary that the operator intervene at this point. The operator does so by depressing the QL key after typing this line. The QL key means Quad Left – the placing of all *type* to the *left*, and *all blank space* to the *right*. Following the keying of QL, the operator keys the **Return** function,the machine moves on to the next line, and the operator continues to keyboard. The machine justifies automatically until the end of the next paragraph or the end of the copy being set.

When the machine approaches the justification range (right margin), the operator must watch for long words near the end of the line and enter discretionary hyphens (DH) at appropriate word-breaks.

Student Activity:

Set the following two paragraphs in a column 4 inches wide, with 1 point of leading, paragraphs indented 2 ems, using 10-point Oracle with bold, in justified format.

> Careful research has traced Abraham Lincoln's paternal ancestry in an unbroken line to Samuel Lincoln, a weaver's apprentice, who came from Hingham, England, and settled in Hingham, Mass., in 1637. From him the line of descent came down through Mordecai Lincoln of Hingham and Scituate; John of Berks County, Va., and Abraham, the grandfather of the President, who moved from Virginia to Kentucky about 1782.
>
> Nancy Hanks, who Thomas Lincoln married on June 12, 1806, and who became the mother of the President, remains a shadowy figure. Even her birthdate is uncertain, and descriptions of her by acquaintances are contradictory.
>
> (Excerpted from The Encyclopedia Americana)

Process the assignment in the CompuKwik.

G. The Insert-Space Function

Objective: Be able to use the Insert-Space key for performing three special typesetting functions on the CompuWriter I.

Information: An important capability of the CompuWriter is the insertion of space at given points on a line. To do this the Insert-Space (IS) function is used.

At each point in typesetting where the Insert-Space key is depressed, the machine automatically places space at that point. If, for example, the key is depressed at the beginning of the line, all of the type on that line will end at the predetermined right margin (Flush Right). Similarly, if the Insert-Space key is depressed at the end of the setting, the type will flush against the left margin with space to the right. (Actually, when depressed at the end of the setting, the Insert-Space function performs exactly like the Quad Left function).

Should the Insert-Space key be depressed in the middle of a line, all the type characters in the line keyed *before* the IS keying will fall to the left margin, and all the characters keyed *after* the IS keying will fall to the right margin, leaving space in the center of the line.

The use of the Insert-Space key also permits centering by keying IS *both before and after* character keying. It permits setting columns of numbers by keying IS between items. Use of the Insert-Space function always requires the operator to press the Return key at the end of the line.

Two-column setting (Italicized words represent copy.)

Left Margin		Right Margin	
1776	(IS)	*Independence*	(RETURN)
1976	(IS)	*Bicentennial*	(RETURN)

Flush-Right setting

Left Margin		Right Margin	
	(IS)	*Daniel*	(RETURN)
	(IS)	*in the lion's*	(RETURN)
	(IS)	*den.*	(RETURN)

Centering

Left Margin		Right Margin	
(IS)	*RICE*	(IS)	(RETURN)
(IS)	*SUNFLOWER SEEDS*	(IS)	(RETURN)
(IS)	*BARLEY*	(IS)	(RETURN)

Note that flush-left, ragged-right columns may be obtained by using either the IS key or the QL key or by placing the machine in the non-justifying mode.

Student Activity:

1. Starting with the Preliminary Operating Procedures, set the following double column 5 inches wide, using 10-point type, leaded 1 point, first column flush *left*, second column flush *right*, using the Insert-Space (IS) key:

Left Column	Right Column
1776	Declaration of Independence
1861-1865	The Civil War
1917	U.S. enters World War I
1957	"Sputnik" starts Space Age
1969	Man lands on the moon

2. Using the same width and leading as in No. 1, set the following copy *centered*, making use of the IS function as necessary:

Asparagus
Lobster or Filet Mignon
Baked Idaho Potato
Chocolate Parfait
Coffee or Tea

3. Set the following copy *flush right* to a maximum width of 3½ inches, using the IS key, 10-point type, 2-point leading.

"War and Peace" has been called the greatest novel ever written. These very words have been used, to my knowledge, by E. M. Forster, Hugh Walpole, John Galsworthy, and Compton Mackenzie; and a similar judgment has been made by many others. Note that it is particularly novelists themselves who hold this opinion. Is not this the book all novelists would like to write? Is it to the novelist what "Hamlet" is to the playwright?

(From the Foreword by Clifton Fadiman to the Simon and Schuster edition of "War and Peace," by Leo Tolstoy.)

H. Line Calculations and Leadered Lines

Objective: Be able to use En Leaders, the Repeat key, and the Calculate-Line function to set leadered lines.

Information: Since, on the CompuWriter, type characters have varying widths (the "w" is wider than the "i", for example), it is necessary in certain typesetting projects to calculate the unit widths of the characters being set. For example, in setting two columns connected by leaders (dots or dashes), where the right-hand column is to be flush right, it is necessary to make a count of the units contained in the right-hand column.

The count is easily made by keying the **Calculate-Line** (CALC) key. Upon doing so, the Line-Measure Display recycles to zero and the Overset Display lights up. In this mode, each time a character is keyed, the Line-Measure Display *records* the unit count of the character without actually setting type. The operator *then makes a penciled record of the total* number of characters keyed.

In a typical setting, the operator will set the copy in the left column, and then key the En-Leader (or Dash-Leader). Press Repeat until the line *oversets*, then press **Cancel Character** until the Unit-Count Display reaches the previously notated unit-count of the text to be set in the right-hand column. The operator then sets the characters in the right-hand column, presses the Return key, and the machine will automatically justify the line.

A typical use for this procedure would be in typesetting a table of contents with chapter titles, leaders, and the appropriate page numbers. This would be set by using the following sequence of function and type keys:

1. **Calculate-Line key** – (CALC). – Activation of this key will place the machine in overset, restoring the character-count display to zero. As the operator strikes each character or space, the display will add up the *total number of units* struck.

2. **Cancel-Line key** (CNCL LINE). – Restores character-count display to the original unit width.

3. **Character Input.** – The operator keys the copy to appear at the left of the line.

4. **En (or EM) Leader.** – This inserts a series of en leader dots into the line. (. . . . .)

5. **Repeat key (RPT).** – The machine automatically repeats the en-leader segments as long as the Repeat key remains depressed.

6. **Cancel Character (CNCL CHAR).** –This key cancels the last-set character. It will cancel each successive final character as it is repeatedly depressed.

7. **Character input.** – The operator keys the copy to appear at the right of the line.

8. **Return (RET).** – Returns the carriage to the left margin and automatically activates the photography process by putting the just-set line on the photographic paper.

Let us see how we would use the sequence of operations listed above.

Set the following lines of copy with en leaders separating the first column from the second column. We wish the second column to be flush right.

President	Linus Small	110
Vice-President	Roger Caruthers	168
Secretary of State	John Lee	98

First obtain unit counts of each entry in the right column by first pressing the Calculate-Line (CALC) key. Make a notation of the unit-count reading on the unit-count display by entering that count in pencil to the right of each line, as shown above. Cancel the line, strike the CALC key again, and repeat the operation for each line until entries of unit counts have been made for each line. (IMPORTANT: Check spelling and spaces to insure accurate unit counts).

When counts are completed, the typesetting can begin. Using the above example:

1. Set the word *President.*
2. Depress the En-Leader key.
3. Depress the Repeat key; hold the key down until the machine goes into overset.
4. Depress repeatedly the Cancel-Character key until the count on the Unit-Display panel reads *110 or more.*
5. Set the name *Linus Small.*

6. Depress the Return key.
7. Repeat the procedure for each line, canceling characters according to the recorded counts.

The Line Calculation is also useful in finding the proper indent positions for starting paragraphs where alphabetical listings are used at the start of such paragraphs: (m), (l), for example.

Student Activity:

Set the following copy on a 4-inch measure, 10-point type, 2-point leaded. Each line will include en leaders between the first and second entries, the second column to be flush right.

Leonardo daVinci . . . . . Artist, Inventor

Albert Einstein . . . . . Mathematician, Physicist

Winston S. Churchill . . . . . Statesman

John F. Kennedy . . . . . Statesman

George Herman Ruth . . . . . Sports figure

George Washington Carver . . . . Scientist

Florence Nightingale . . . . . Nurse, Philanthropist

Herman Melville . . . . . Novelist

Reset the width to 3½ inches and set the following copy, using the dash leader in place of the en leader.

Rembrandt's "Night Watch" - - - - $1,050,000

Original Aaron Burr autograph - - - - - - $12,055

Map of world, circa 1675 - - - - - - - - $ 2,125

Graf Zeppelin $1 Stamp - - - - - - - - $ 235

First "Superman" Comic Book - - - $42.30

N.Y. Times, Nixon Resigns - - - - - - $ 7.00

UNIT 7 – COMPUWRITER I

I. The Discretionary Hyphen

Objective: Be able to use the Discretionary-Hyphen key.

Information: We have learned that justification (even left and right margins) is achieved on the CompuWriter I by the automatic insertion of space between words to stretch out those lines which fall short of the right margin. A long word may end a line, with the available space too short for that word. When this happens the machine will go into overset. The word can be cancelled, but the distribution of space will leave wide gaps of space between words. The line will have an unsatisfactory appearance, and readability will be reduced.

The **Discretionary-Hyphen** (DH) key will solve this problem. Though automatic, use of the DH key requires decisions by the operator. As the operator is setting a line, the approach of the line end is signaled by a buzzing and lighting up of the justification light signal. If a long word needs to be set at this point, the operator can insert a hyphen to break the word by depressing the DH key after a syllable. In very long words, the operator can insert discretionary hyphens after each syllable. The machine will use its *discretion* at this point, inserting the hyphen at the last possible point. If the entire word fits, the discretionary-hyphen function will be ignored.

Example:

Plants manufacture carbohydrates by photo (DH) *syn* (DH) *the* (DH) *sis.*

In this example the machine might insert a hyphen after the syllable *the*. The DH function will be ignored after the syllables *photo* and *syn*, and the syllable *sis* will be thrown to the next line.

The above example would look like this:

> Plants manufacture carbohydrates by photosynthe-
> sis.

If the entire word fits on the line, all the DH instructions will be ignored.

Of course, not all words can be hyphenated. For example, the word *through* is a single-syllable word. Hyphenation would be both grammatically and typographically incorrect.

Excessive hyphenation at the ends of lines should be avoided as much as possible. Avoid a typographically awkward appearance. Except when setting very narrow columns, don't hyphenate short words such as *tonight*, where the syllable *to* could be thrown onto the following line without detracting from the appearance of the line above.

While the DH function is performed by the machine at its programed discretion, the responsibility for correct use of the DH function rests with the operator.

Student Activity:

Set the following matter, 10-point type on 11-point leading, width of 16 picas:

> Now we are engaged in a great civil war, testing whether that nation, or any nation so conceived and so dedicated, can long endure. We are met on a great battlefield of that war. We have come to dedicate a portion of that field, as a final resting place for those who here gave their lives that that nation might live. It is altogether fitting and proper that we should do this.

J. Plus 1 Unit Function

Objective: Be able to use the Plus 1 Unit function.

Information: The **Plus 1 Unit** (+1U) key is located at the upper left of the keyboard. It inserts one unit of space at any point on the line where used. It must be struck in the *shift* position. The key may be used for manual letterspacing between characters by striking the +1U key after each letter of the word.

Example:

(Normal spacing)	Communications
(Letterspaced)	Communications

The Plus 1 Unit may also be used for the alinement of text or indents. (Keep in mind that typeset characters have different unit values, depending upon the width of the character.)

Example:

Alinement of characters with various width values:

(l) Automatic cancellation
(m) Automatic insert space
(n) Automatic leaders

If the +1U key is not used, the above list when typeset will look like this:

(l) Automatic cancellation
(m) Automatic insert space
(n) Automatic leaders

Procedure: Set the largest character (m), including the parentheses and an en space. *Make a note of the value remaining on the counter* and cancel the line. This value will be the starting point for all the lines of text. Set the (l), 1 en space, insert +1 units until the counter reads the same value as previously noted. Set the text, *Automatic cancellation.*, then Quad Left, Return.

Set the next line. It will be spaced exactly right, for it was used to calculate the spacing for the others. Then set the last line, following the procedure for the first line.

IMPORTANT: Always strike +1U in the *shift position.*

Student Activity:

1. Using a 6-point type, 2 points of leading, and a width setting of 3 inches, set the underlined words letterspaced, making use of the +1U function:

   Maybe all the Jets really need is a good ruler. Their inability to judge distance, coupled with a controversial call by Coach Charley Winner, helped send them to a sudden 24-23 loss yesterday to the Buffalo Bills.

2. At a width of 14 picas, solid leading, set the following copy in 10-point type, making use of the Plus 1 Unit (+1U) function:

   (a) George Washington

   (b) John Adams

   (c) Thomas Jefferson

   (d) James Madison

   (i) William Henry Harrison

   (k) James Knox Polk

   (m) Millard Fillmore

   (r) Ulysses Simpson Grant

   (w) Benjamin Harrison

   (z) Theodore Roosevelt

K. Plus 1 Point Function

Objective: Be able to use the Plus 1 Point key.

Information: The **Plus 1 Point** (+1P) function is located on the same key as the +1U function, but it is used in the *unshift* position. The +1P function permits the operator to add a single point of leading (vertical spacing) when setting copy, without the need of resetting the leading switches. The operator simply strikes the +1P key (unshift position) several times at the end of each paragraph. It is often used to add additional vertical space between paragraphs.

The key can also be used for special effects in the course of setting a line of type:

Now
is
the
time
for
all
good
men
and
women

In this example, the operator strikes the +1P key after each word, ending the *complete* line with a normal return code (Quad Left, Return, in the above example.)

Student Activity:

Using a 4-inch wide measure, solid leading, set the following line using the +1 P key after each word:

When in the Course of Human Events

L. Space-Only Function

Objective: Be able to use the Space-Only (SO) function.

Information: The Space-Only (SO) key is used only in the **Shift Position.** It prevents the flashing of a character. When you press down on the SO key, the machine will *allow for* the assigned unit width of the next character, but the character *will not appear in the printout.* The SO key must be used in the *shift position.*

Example: Alinement of text when the alining factor is unknown:

X*M*. Automatic
High-speed
Typography

Procedure: Type the *X*, adding two points of additional leading (+1P keyed twice). Type the *M* and *period*, followed by a thin space. Set *Automatic*, Quad Left, and Return.

Now strike the Space-Only key (SO-*shift position*), again the *X*, Space Only, again the *M*, Space Only, *period*, thin space. Set *High-speed*, Quad Left, and Return.

Repeat the entire procedure for the third line, *Typography.*

Student Activity:

Using 10-point type, solid leading, and width of 3 inches, set the following:

A*M*. Eggs
Bacon
Orange Juice
Coffee

IMPORTANT: Always strike the SO key in the *shift position.*

M. Flash-Only Function

Objective: Be able to use the Flash-Only Function

Information: The Flash-Only (FO) key is used in the *unshift position.* It tells the machine not to count the character immediately following the function. The character will be photographed but not counted, and the value of any fixed space (em, en, thin) can be inserted. The example will make this clear.

Example:

Alinement of tabular text with variable alphabetical characters:

14a	2,129,630	788
13	7,926,124f	399
16i	8,863,245	300

Since the widths of the *alphabetical* characters (a, f, i, in the above example) vary because of differences in their unit makeup, the tabular *figures* (which all have the same unit makeup) would not aline. By flashing the characters *without their width values*, the other columns can be properly alined.

Procedure: Type the *14*, Flash-Only (unshift position), and type *a*, followed by two em spaces. Then type the *2,129,630*, again followed by two em spaces. Type *788*, Quad Left, Return.

Repeat the procedure for each of the following lines, allowing the fixed space of 2 em spaces for the alinement of the columns. Be sure to press the FO key before the alphabetical characters.

Student Activity:

Using a 3-inch width, 10-point type with one point of leading, set the following:

33*	2,221,667	122
44**	6,777,223†	224
55	8,999,111††	333•

N. Multiple Justification

Objective: Be able to use the Multiple-Justification Function.

Information: The Multiple-Justification function (MJ) is used in tabular composition for establishing a series of columns. The text for each column will be positioned on the same *horizontal* line.

In normal operation, the lens, after photographing the characters of the line, is positioned back to the left margin by the Return key. In Multiple Justification, the lens is *not* repositioned to the left by the Return key, nor does the leading take place. The lens continues to travel, stopping at the right margin of the selected line measure. The line measure is then reestablished on the counter for typesetting the next piece of information. (This block will be indented from the original left margin by the width of the previous measure.)

Copy within each Multijust segment may be positioned Left, Center, Right, or Justified. *All quadding is performed by striking the Insert-Space key.* The last column is ended normally with a Return code, *activating the leading* and returning the lens back to the left margin of the first Multijust segment.

Example: Normal line measure, 10 picas (X 10)

LM X 10 RM
Starting Position

Example: Multijust two 10-pica columns

LM X 10 RM		LM X 10 RM
Starting Position		Second Column Back again

Procedure: Set *Starting*/Insert Space/*Multijust*/Return/Set *Second Column*/Insert Space/Return.

Repeat procedure for second line.

Example: Flush Left, two columns

X 10	X 10
Communications	Results

Procedure: Set *Communications*/Insert Space/Multijust/Return/Set *Results*/Insert Space/Return

Example: Center, two columns

X 10	X 10
Communications	Results

Procedure: Insert Space/Set *Communications*/Insert Space/Multijust/Return/Insert Space/Set *Results*/Insert Space/Return

Example: Flush Right, two columns

X10	X 10
Communications	Results

Procedure: Insert Space/Set *Communications*/Multijust/Return/Insert Space/Set *Results*/Return

Important: Multiple-Justification (MJ) key must always be keyed in the *unshift* position.

It is possible to use Multijust for several columns, and they need not be in the same format. For example, one could have Flush Left, Justify, Center, and Flush Right, all in the same horizontal line.

Student Activity:

1. Using a 10-pica width, with 9-point type, and 1-point leading, set the following exercises, using the Multiple Justification (MJ) function:

   a. Two columns, each column set Flush Left

Pica	Point
Foot	Inch
Kilometer	Meter
Gallon	Quart

b. Two columns, each Flush Right

Boat	Ship
Car	Truck
Plane	Dirigible
Apollo	Enterprise

c. Two columns, each column centered

Teeth	Mouth
Circulation	Artery
Bone	Cartilage

2. The following is to be set as shown here, in three columns: the first and third columns to be seven picas and the second (middle column) to be six picas.

NOTE: To insert the 6-pica measure for the second column, complete the Multijust/Return function for the first column; change to a 6-pica measure; and strike the Cancel-Line key. After setting the second column, again complete the Multijust/Return function; restore the 7-pica measure; and again cancel line.

Copenhagen	14	kilometers
London	844	kilometers
New York	5499	kilometers

UNIT 7 – COMPUWRITER I

O. Double-Size Setting

Objective: Be able to set type double-size on the CompuWriter I.

Information: The CompuWriter I has the capability of enlarging type of any font to double its point size. A 9-point type size can be set as an 18-point type, a 10-point as a 20-point type. This doubling will, of course, affect the leading and the amount of space the type will occupy; double-size type will occupy twice the width that the single size would occupy.

Procedure: To set twice the size, it is necessary to perform a sequence of operations.

1. The type font and width card remain the same.
2. At the back of the machine, the size switch is moved to the 2X position. This positions the 2X lens before the moving font.
3. In the photographic section, the lens cover (baffle) is gently removed from the 2X lens and *placed over the 1X* lens.
4. Referring to the 2X width chart, the appropriate pulley and belt are inserted.
5. The desired line-width is obtained by referring to the 2X width chart. The unit count is inserted.
6. The leading is set according to the 2X size of the type.

Student Activity

Set 20-point Helios, leading 2 points, width 5 inches.

"Astronauts" is a term that means "sailors of the stars." Until the beginning of the space age in the mid-20th century, the word belonged to the realm of science fiction. However, with the launching of the first artificial satellite in 1957 and the initiation of serious government projects to send men beyond the earth's stratosphere, a whole new space-age terminology was required.

From The Encyclopedia Americana

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P. Maintenance

Objective: Be able to perform simple maintenance procedures on the CompuWriter I and the CompuKwik.

Student Activity:

CompuWriter

1. Clean all *external* surfaces with damp sponge; dry with a rag.

2. Remove font from flywheel, place on clean white sheet of paper, spray with font cleaner on both sides, and place in acetate sleeve. Hang up sleeve in font storage cabinet.

CompuKwik

1. Wearing rubber gloves, remove cover and clean with damp sponge externally and internally.

2. Remove roller assembly, place under running water, and wash off each roller by turning gears by hand.

3. Wipe off interior surfaces of CompuKwik with damp sponge and wipe dry with rag.

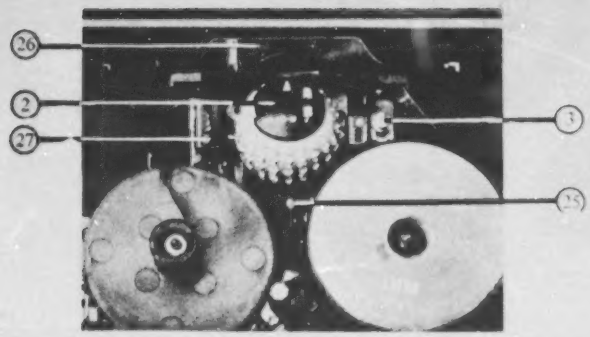
Caution: Do not open any of the high-voltage compartments of the CompuWriter.

When changing fluids on CompuKwik, never empty *stabilizer* and *activator* at same time. Empty one fluid, flush down drain, and then empty second fluid.

Materials: Font cleaner
Damp sponge
Dry rag

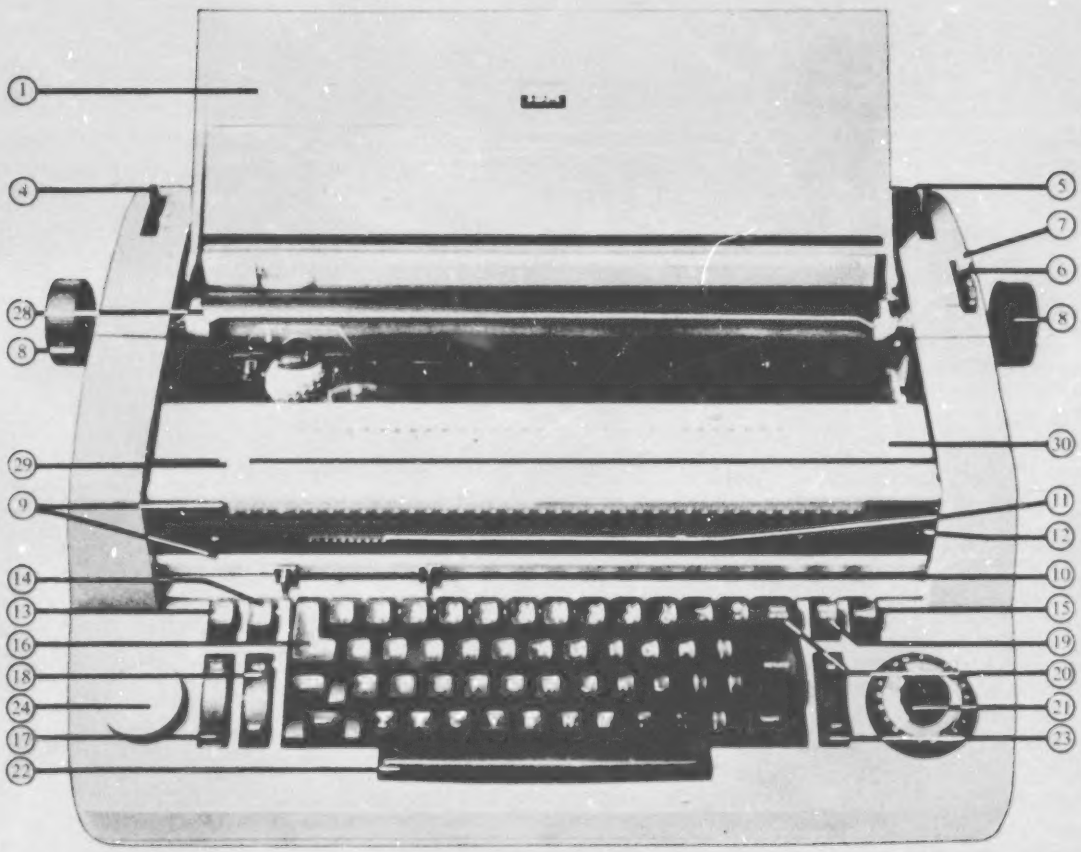
IBM "SELECTRIC" COMPOSER FEATURES

1. **Cover/Paper Support** - closed, protects Composer from dust; open, is a paper rest
2. **Type Element** - contains all characters and is removable
3. **Impression Control** - regulates force with which Element strikes paper
4. **Escapement Lever** - regulates horizontal spacing
5. **Paper Release Lever** - releases paper for easy removal
6. **Leading Dial** - regulates vertical spacing
7. **Zero Index Lever** - allows you to return to beginning of line without spacing vertically
8. **Platen Knobs (Right and Left)** - permit manual indexing of paper, one or four points at a time
9. **Scales** - calibrated in picas; used to show Carrier position, set margins and tabs and to center
10. **Margin Sets (Left and Right)** - control line length
11. **Justification Tube** - means for providing scale reading after rough-copy typing in justification
12. **Space Counter Window** - shows number of Space Bar strokes made on a line when Justification Lever is down
13. **No-Print Key** - permits normal escapement of Carrier as you type without printing on the paper
14. **Margin Release Key** - enables you to type beyond established margins
15. **Index Key** - vertically spaces paper, but Carrier does not move
16. **Tab Key** - moves Carrier to nearest tab setting
17. **Tab Locate Control** - permits you to tab to every point on Scale where tab can be set
18. **Tab Set/Clear Control** - sets or clears tab stops
19. **Character Backspace Key** - backspaces character at a time
20. **Backspace Key** - backspaces one unit at a time
21. **Justification Control** - causes lines to justify
22. **Space Bar** - enables you to space between characters or words
23. **On/Off Control** - controls power to Composer
24. **Velocity Control Dial** - used with foreign language and symbols Elements; overrides customary force with which Element strikes paper in given positions where characters (such as accent marks) vary in weight from those normally printed from that position
25. **Ribbon Load Lever** - raises Ribbon Guides for easy ribbon changing
26. **Card Holder** - serves as alignment aid in addition to holding paper
27. **Ribbon Lift Control** - lets Element emboss paper without coming in contact with ribbon (an alignment aid)
28. **Paper Bail** - holds paper in place against Platen
29. **Sliding Centering Scale Bar** - enables you to move Centering Scale to center at any point on paper
30. **Carrier Cover** - folds back when changing ribbon or turning Justification Tube



Enlarged View
of Carrier.

THE IBM
SELECTRIC COMPOSER



UNIT 8 – IBM SELECTRIC COMPOSER

A. Component Parts and Their Functions

Objective: Be able to identify the component parts and functions of the IBM Selectric Composer.

Information: **Element.** – The IBM type font comes on an element, a ball-shaped device which locks onto the movable mechanism. To identify a given font, a code is printed on the top of the element. This tells the style, size, and weight of the font. A colored triangle above the code shows the correct horizontal space adjustment for the particular font.

The element is *removed* by using the **lock lever** in the center. (The letters IBM are embossed across the top of the lever.) To unlock a font already on the Composer, the lever is pulled up and brought as far as possible to the right, until a click is heard. The lever is then used as a handle to remove the element.

To *insert* the element, the lock lever is pulled back, the element placed on the carrier post with the colored triangle pointed toward the platen, and the lock lever pushed back down to lock the element on the machine. (The shift key must *not* be locked down when inserting the element.)

Paper-Release Lever and Paper Bail. – Paper is inserted in the machine by pulling the Paper-Release Lever forward. As this is done, the Paper Bail comes forward automatically. The paper is dropped behind the platen, and the Paper-Release Lever is snapped back again. It is important to move the Paper-Release Lever back quickly, so that all feed rolls grab the paper simultaneously, so that the paper feeds straight.

Index Key. – Paper is fed into the Composer automatically by restoring the Paper-Release Lever to its original position and by depressing and holding the Index Key. The Index Key is actually a two-step key. Pressed with a light, flicking action, it line-spaces once. With a little extra pressure to the second level, the Index Key produces repeat action. The Index Key is also used to remove paper from the machine.

On-Off Switch. – This switch controls power to the machine. It should be switched off when the machine is not in use.

Scales. – The IBM Selectric Composer has four scales, each marked in picas:

a. **Margin-Set Scale** – in front of the composer. Used as a guide for setting the margin.

b. **Carrier-Position Scale** – above the Margin-Set Scale. Has a red indicator which shows the position of the element along the writing line.

c. **Centering Scale** – superimposed on Carrier-Position Scale. Used for centering copy.

d. **Paper Table Scale** – behind the platen. Aids in inserting paper in relation to the margins set on Margin-Set Scale.

Margin Sets. – The left and right sets are just below the Margin-Set Scale. The sets are grasped and pushed to the desired point. The left Margin Set can be placed at any whole-pica mark on the scale, while the right Margin Set can be placed at both whole and half-pica marks. A bell will ring when the Carrier is within three-quarters of an inch of the right margin, but the Carrier will *not* stop at the right margin.

The right and left margins can be set as close as 1½ inches (9 picas), but they should not be forced any closer together than that. The right Margin Set can be moved only as far left as 12. Thus, for a 9-pica writing line at the left of the paper, the right Margin Set should be moved to 12; the left Margin Set to 3.

Tabulation Controls. – The **Tab Locate Control** is at the left of the keyboard. It is used in locating the position where tabs may be set. First depress Tab Locate. Now when you depress the **Tab Key**, the Carrier will move from pica to pica, locating automatically each place where tabs may be set. They are set with the **Set** end of the **Tab Set/Clr Control**. All tabs will be cleared when the Carrier is moved to the extreme right and the **Clr** end of the control is held down as you return the Carrier. A single tab may be cleared by moving the tab to the position to be cleared and depressing the Tab Clr.

Platen Knobs. – In contrast to the platen knob of a conventional typewriter, where the turning of either knob advances the platen from one line to the next, the Composer works differently: the *left* Platen Knob moves the Platen *four points* at a time, while the *right* Platen Knob moves it *one point* at a time.

Leading Dial. – This dial, located to the left of the right Platen Knob, permits proper *vertical* spacing as determined by the *size of type* and the *amount of space* desired between lines. The difference between the Leading Dial and the size of the type represents the amount of leading between lines. (For example, in using an 8-point type with 2 points of leading, the Leading Dial will be set at 10).

Escapement Lever. – The amount of space the Carrier moves across the paper for a particular type size is regulated by the Escapement Lever, located at the upper left of the Composer. This Escapement Control is color-coded for the three widths – red for large type, yellow for medium, and blue for small type sizes. The three colors correspond to the colors on the font element.

Impression Control. – This control, located to the right of the Type Font Element, adjusts for weight of type, regulating the force with which the type strikes the paper. These settings range from 1 for the lightest pressure to 6 for the heaviest.

Backspace Keys. – The Composer features two Backspace Keys. One, labeled **Backspace**, moves the Carrier back *one unit at a time*. The other, labeled **Char. B/S**, moves the Carrier back one full character at a time. It will remember the last several characters struck (up to 54 units).

Index Key. – Pressing this key advances the paper vertically. Carrier does not move.

Zero Index Lever. – This permits the Carrier to return to the beginning of the line without line spacing to the next line. This lever is an aid in centering copy and for a number of other operations. To use it, pull it forward, hold it, flick the **Return Key**, and release the Lever.

Card-Holder Alinement Guide. – The clear plastic **Card Holder** located in back of the Type Font Element is a useful aid, not only for holding cards, but for alinement. The short mark at the top center shows the approximate printing point of the line, while the longer vertical line is a more precise alinement guide.

Ribbon-Lift Control. – This control, located to the left of the Type Font Element, is an aid to vertical alinement. It permits typing without the image passing through the ribbon; it leaves an indented, uninked image. This is a great help when words or ruled lines have to be placed precisely.

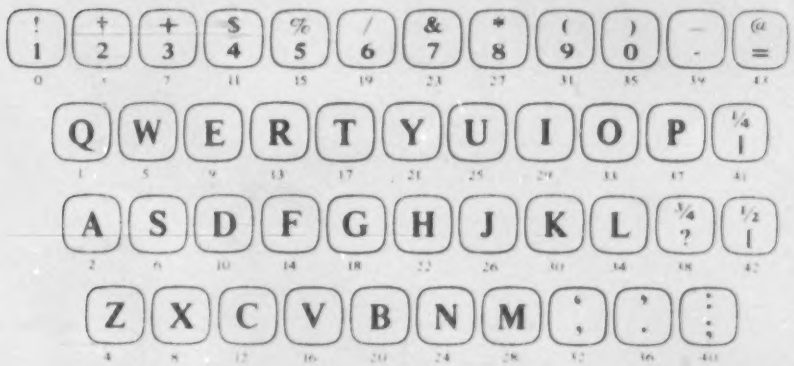
The Space Bar. – Located just below the keyboard, the Composer Space Bar is adjustable (by turning the inside dial at the lower right of the machine) to give spaces of different lengths. For example, if you set the dial at 5, the space bar will make a 5-unit space. Holding the Space Bar down will produce repeated spaces.

Justification Tube and Justification Dial. – The Justification Tube, located above the Margin-Set Scale, and the Justification Dial, located at the right-front of the machine, are for all justification functions.

Velocity-Control Dial. – Located to the left of the keyboard, this optional feature allows for the different sizes of special language and symbol fonts by controlling the striking force.

Ribbon Mechanism. – The Composer, using a solvent-film riboon, has its ribbon mechanism directly before the Type Font Element.

Keyboard. – The Composer Keyboard is somewhat different from a typewriter keyboard, to conform to requirements for typesetting:



UNIT 8 – IBM SELECTRIC COMPOSER

B. Preliminary Procedures

Objectives: Be able to carry out the preliminary operating procedures and type a simple paragraph.

Student Activity: *

Follow these directions:

1. Select a type font with a red triangle on the top of it, and place it on the machine. (Be sure the Shift Key on typewriter keyboard is not locked down.)
2. Set the leading dial on the top-right of your machine for the number you see on the top of the Font, or for a number one or two numbers higher than it. (If the number is 12, a good setting of the dial is 13.)
3. Place escapement lever on upper left of machine at colored triangle corresponding to the color appearing on the font you are using.
4. Do not bother to set a margin or tabs. (You can type through your right margin, so it does not matter at this point where it is set. The purpose of this first practice is to get the feel of the machine, and see the kind of material it produces.)
5. Pull forward on the Paper Release Lever; drop paper behind Platen; push back the Paper Release Lever; push On portion of On-Off Control; depress and hold Index Key, and paper will feed into the machine.
6. Type from this practice paragraph. Relax and type slowly. Notice the copy you get as you type. For the best appearance typographically, space only once after periods.

   The Composer is color-coded to simplify making machine adjustments. When using a Type Font with a red triangle on the top of it, set the control on the upper left of the machine at red. When switching to a smaller size of type, coded yellow or blue, move the control lever to the color which matches the one on the Font.

7. Experiment with different type fonts–different sizes and weights. (Remember, the code is printed on the font. The larger the number in the code, the taller the letters. The letters "M" and "B" stand for "medium" and "bold" weight type. An "I" stands for italic type.) As you experiment by typing with different fonts, follow steps 2 and 3 for each font change.

Note: Keep hair, fingers, and jewelry out of the Composer when the machine is turned on.

* This and most of the other exercises are from the IBM Selectric Composer Training Guide Supplement, slightly adapted.

C. Vertical Spacing

Objective: Be able to verify leading of previously typeset copy by using the IBM Conversion Scale Ruler.

Information: In order to become familiar with the point and pica measurements used in typography, it is useful to measure previously typeset matter. The IBM Conversion Scale provides measurements in picas, points, inches, and ordinary typewriter spacings. In addition, we use a plastic leading scale for accurate measurement of interline spacings.

Student Activity:

Use the IBM Conversion Scale to verify the measurements shown on the next page. Use the Pica Ruler on the bottom front of the Conversion Scale to verify the column widths. Then verify the point measurements with the Point Ruler, which is on the back right edge of the Conversion Scale. (Remember, the Point Ruler is marked in two-point steps.)

Using the plastic leading scale, find out the total vertical measure of all four items on the next page.

24-point

SNOW STORM BLANKETS NATION

Blizzard Travels Across Northern Tier of Country; Leaves up to 36 Inches of Snow

12-point set solid

Chicago, March 1, 1965—With winds raging and snow flying, cities from Maine to Washington and Oregon have been covered with huge drifts of fresh-fallen snow. Traffic, immobilized for up to twenty hours in some places, has begun to move as emergency snow-clearing equipment alleviates congestion in the most severely stricken areas.

Schools have been closed, and business is at a near standstill all across the country, as the winter of 1965 makes a last-ditch effort to insure its place in the annals of weather history.

7-point type set solid

10½ picas wide

HARPER STREET—2½ rms, mod apt $120 453-5458

GREEN STREET—2½ rms, lge bdrm, terr $135. Suitable for bus cple 453-6792

RIVER ROAD—3 rms, brand-new bldg. gar, patio. $180 mo, no fee. 454-2956

STEVENS POINT—4 or 5 rm grdn apts, gar, playgrd, on-premises lndry 385-1212

BEDLOW ROAD—1 rm studio apt. Ideal for bus cple $90 mo 385-9934

WASHINGTON STREET—3½ rm grdn apt, free decorating with 2 yr lease. $160 mo 385-6859

ROPER ROAD—3 rms, all-elec kitchen, nr all trans. $150 mo 385-7045

6-point type set solid

10½ picas wide

TV: The Next Ten Years — 12-point type

The great changes in commercial television during the next decade will be brought about by second, third and even fourth sets in the American home. "...television viewing will be far more personalized and fragmented than before. This will bring about a greater diversity of programming..." and "a gradual expansion of the total man hours spent in viewing."

These are among the predictions made during a three-day seminar at Stanford University, which was attended by TV executives, sponsors, independent producers and educators. Their discussions and findings have been published in The Future of Commercial Television: 1965-75, Stanford University.

10-point type 3-point leaded

13 picas wide

60-point headline type

WHITE SALE

BARGAINS

48-point headline type

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UNIT 8 – IBM SELECTRIC COMPOSER

D. The Unit System

Objective: To become familiar with the IBM Composer Unit System.

Information: The Unit system of the IBM Selectric Composer is *not* the same as that of either the CompuWriter or the Compset 500. In the IBM Unit system, for example, the letter "m" has a value of 9 units, as does cap "M"; lower case "n" has a value of 6, while cap "N" has a value of 8. *The unit value of a given letter never changes,* regardless of whether the type size in which it appears is large or small. The number of units *per pica* varies with the size of type.

Student Activity:

Familiarize yourself with the variations in unit values. Refer to the chart on the following page as required for special typesetting jobs.

Count the number of units in each of the items furnished by your teacher.

CHARACTER UNIT VALUES

(Always the same regardless of point size of type)

In Alphabetical Order:

A-8	a -5	, -3
B-7	b -6	. -3
C-7	c -5	: -4
D-8	d -6	; -3
E-7	e -5	' -3
F-7	f -4	' -3
G-8	g -5	* -6
H-8	h -6	† -6
I -4	i -3	(-4
J -5	j -3	) -4
K-8	k -6	! -4
L-7	l -3	$ -6
M-9	m-9	+ -6
N-8	n -6	/ -4
O-8	o -6	? -5
P -6	p -6	- -3
Q-8	q -6	¼-8
R-8	r -4	½-8
S -6	s -4	&-8
T -7	t -4	—-8
U-8	u -6	%-8
V-8	v -5	= -6
W-9	w-8	| -5
X-8	x -6	| -6
Y-8	y -6	@-8
Z -7	z -5	¾-8

ALL NUMERALS = 6

By Unit Value:

3 units	4 units	5 units	6 units	7 units	8 units	9 units
i	f	a	b P	B	w V	m
j	r	c	d S	C	A X	M
l	s	e	h *	E	D Y	W
.	t	g	k †	F	G &	
,	I	v	n $	L	H %	
;	:	z	o +	T	K @	
'	(	J	p =	Z	N —	
'	)	?	q |		O ¾	
-	!	f	u All		Q ½	
	/		x numbers		R ¼	
			y		U	

UNIT 8 – IBM SELECTRIC COMPOSER

E. Basic Machine Adjustments

Objective: To be able to type simple copy in three different sizes of type, making all necessary machine adjustments.

Student Activity:

Type the copy at the bottom of this page, following the steps listed here.

1. Set a medium-weight, 12-point type on 14 points (Escapement Lever on red, Leading Dial on 14).
2. Set margins at 10 and 31. (Remember to move the Carrier all the way to the left when moving the right Margin Set and all the way to the right when moving the left Margin Set.)
3. Clear any tabs which may already be set by tabulating to the extreme right, then depressing and holding Tab Clear as you return the Carrier.
4. Set a tab at 12 for a two-pica paragraph indention. (With the Carrier at the left margin, push down Tab Locate and depress the Tab Key twice. Then depress Tab Set.)
5. Remember to bring the Paper Release Lever forward to drop paper behind the Platen; snap it back again, and use the Index Key to insert paper.
6. Remember, you can character-backspace for typographical errors. Also, you can slide the Card Holder to the right and use the vertical line to check the Font's printing position.
7. After you have typed the first paragraph below, change to a 10-point type and make the appropriate adjustments for the Escapement Lever (match the colors) and Leading Dial (two points higher than the number on the Font for copy set with two-point leading). Type the second paragraph.
8. Finally, type the copy with 8-point type, changing the Escapement Lever and Leading Dial appropriately.

"Leading" is a term used to describe white space between lines of copy. To "set solid" means to allow no extra leading between lines of copy.

The number you see on top of a Type Font represents the point size of that type. For copy set solid, set the Leading Dial for the same number as that on the Font. For one point of leading, set the Dial for one number higher. For two-point leading, set the Dial for two points higher.

UNIT 8 – IBM SELECTRIC COMPOSER

F. Justification

Objective: To be able to set justified matter.

Information: **Justification** means setting copy so that the right-hand margin is straight. The machine does this by adding extra space between words to spread the lines so that they always end at exactly the same point at the right margin. Unlike the phototypesetters, copy must be typed twice to obtain justification; first a rough copy, then a copy in which the extra spaces are automatically inserted to justify it.

Procedure: The following steps must be followed in setting justified matter:

1. Determine the length of line required for final copy.
2. Set the left and right margins for the required line length on the *left half* of the paper. (Rough copy will be typed between these margins).
3. On the *right half* of the paper, set a tab for typing the justified line.
4. Set Escapement Lever: set triangle on Justification Tube to color key for type-size being set.
5. Use the Tab Locate to "true up" the Justification Window scale. (Each time Justification Tube is moved from one Window to another, or the right margin moved, the Tube must be trued-up again).
6. Pull down Justifying Lever on the right side of the Justification Dial to place machine in Justifying Mode.
7. Type the rough copy.
8. Take scale reading from Justification *Tube*. Tab, record reading, and set Justification *Dial* accordingly.
9. Tab, and re-type the line. It will be justified.

Student Activity:

1. Insert paper so left edge is at zero.
2. Set margins for 6 and 24. (Remember to move the Carrier all the way to the right when setting the left margin and all the way to the left when setting the right margin.)
3. Clear all tabs, and set new ones at 26 and 29: Depress Tab Locate and flick the Tab Key repeatedly until the Carrier is resting at 26. Depress Tab Set. Repeat process to set tab at 29.
4. Use 11- or 12-point type (a Font with a red triangle).
5. Move Escapement Lever to the red setting.
6. Set Leading Dial for 13 or 14.

7. Set Impression Control for 3.
8. Rotate Justification Tube so the red triangle shows on the band at the left. You can feel when the Tube has clicked into position.
9. Using Tab Locate, position Carrier at the pica preceding the right margin (23). The white line in the Justification Window should be exactly alined with the number 12. If it is not, true up the Tube by turning the band on the far right of the Justification Tube. Arrows on the band tell you the direction to turn the serrated bands.
10. Return Carrier.
11. Pull Justification Lever down.
12. Type first line of copy (see below). Listen for the bell, and notice how the colors move to the left side of the Justification Window. End line close to – but not beyond – the right margin. *Do not space after last word.*
13. Read the color at left of the scale (blue) and number of the scale (6) where the blue ends. (If color does not end exactly on a white line, adjust the Tube again so the color does end on a scale marking.)
14. Tab and record scale reading (b6).
15. Set inner knob of Justification Dial on blue. Set outer dial on 6.
16. Tab and type line again.
17. Return Carrier. Repeat steps 11 through 16 for rest of copy.

Remember:

1. Once you have adjusted the band on the Tube (step 9 or 13 above), and the color ends exactly on a scale marking, *do not* change the band again on a subsequent line of this project.
2. When more that one color appears in the Window, you are concerned with the one at the extreme left.
3. Use the Character Backspace Key if you make a typographical error on your rough copy.
4. Use the line on the Card Holder if you need to check your position on the writing line.

The ability to justify copy easily and quickly	b6
is one of the distinct advantages of your new	b7
Composer. By merely typing copy once, tak-	o1
ing a reading from the Justification Window,	o2
then setting the Justification Dial, copy is	w3
automatically aligned at the right margin as	g2
it is typed a second time.	

The ability to justify copy easily and quickly is one of the distinct advantages of your new Composer. By merely typing copy once, taking a reading from the Justification Window, then setting the Justification Dial, copy is automatically aligned at the right margin as it is typed a second time.

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Information: Parallel and Serial Justification

The exercise just performed is a sample of **parallel justification** – a line of the rough copy is typed first, then the second column is tabbed over and the justified matter set. In **serial justification,** the entire rough copy is typed, a line-by-line record made of excess units, and then the justified matter is set either below the block of rough copy or on another sheet of paper.

The choice between the two methods is a matter of personal preference. Parallel justification has two main advantages: you do not have to record a scale reading for each line, and you see the finished work as you proceed with the setting.

Serial justification, on the other hand, has its own advantages. It does not require changing back and forth, line by line, between rough and justified matter. The Justification Lever is pulled down just once for the rough-typing copy. It also permits production advantages, in that more than one person can work on a rush job simultaneously. It also helps the copyfitter to know exactly how much finished copy he will have.

Student Activity:

Retype in serial justification the paragraph done previously in parallel justification.

UNIT 8 – IBM SELECTRIC COMPOSER

G. Justification Refinements and Corrections

Objectives: Be able to perform justifications on the Selectric Composer that require further knowledge of justification techniques.

Information:

A. "O.K." lines – Occasionally, a line of rough copy ends exactly on the right margin and needs no change when typed in the justified column. This is called an O.K. line. The Justification Dial should be set for black 0 when typing the justified line, and the code x0 entered to the right of the unjustified column.

B. Backspacing to hyphenate. – When typing the rough-copy column, if the setting goes beyond the right margin (no color will show in the Justification Tube window), it will be necessary to back up and hyphenate the last word. The **Character Backspace (Char B/S)** is used. As the color returns to the Tube window, the operator backspaces the appropriate number of letters to type the hyphen, takes a reading, and continues.

C. Backspacing to delete a word. – If it is not possible to hyphenate the last word, the Character Backspace must be pressed for *each* letter in that word *plus* the space before it and the *last letter of the preceding word.* Then retype that last letter. Now you are ready to take a scale reading. But, *before doing so,* adjust the Justification Tube by turning it up, read the scale, and taking note of the color key, get the correct reading for the line.

D. Making corrections. – Since the appearance of the rough copy is unimportant, typographical errors may be corrected by merely using the Character Backspace and striking over.

Student Activity:

1. Set your machine with the same margins and tabs as on page 78. Now follow these instructions:

"O.K." Lines

1. Pull down Justification Lever, and type first line below, as you see it.

"O.K." Lines

All O.K. lines are lines which end on the right-hand margin. As they end right on the margin, x0 All O.K. lines are lines which end on the right-hand margin. As they end right on the margin, x0

2. Notice that the line ended exactly on the right margin. (Red Carrier Position Indicator is on the margin and white line in Justification Window is on zero.)
3. Tab and type x0 for scale reading.
4. Notice that Justification Dial is still at black 0.
5. Tab and type line again.
6. Repeat for second line.

Backspacing to Hyphenate

1. Type line below as you see it, including all of word "justified."
2. Notice that the line was too long, and you have gone beyond the right margin. There is no color left in the Justification Window.
3. You obviously must hyphenate the word "justified," so depress Character Backspace Key four times for the last four letters.
4. Type a hyphen. It will print over the letter "f."
5. Put a pencil mark through the last syllable to remind you not to type it in the justified line.
6. Tab and record your new scale reading (o1).
7. Set the Justification Dial for orange 1, tab, and type the line.

Backspacing to Hyphenate

all normal spaces between words in the justified o1 all normal spaces between words in the justi-

Backspacing to Delete a Word

1. Type line below as you see it, including the word "they."
2. Notice that you have again gone beyond the right margin. This time you cannot hyphenate the last word, so delete it from the line.
3. Depress Character Backspace Key six times: once for each letter in the word "they," once for the space before it, and once for the last letter ("s") of the preceding word ("as").
4. Restrike the "s" to double-check the accuracy of the backspacing and to correct the scale reading.
5. Put a pencil mark through "they," so you will not type it in the justified line.
6. Turn the Tube up to take an adjusted scale reading.
7. Tab and record your new reading (o4).
8. Set Justification Dial for orange 4, tab, and type the line again.

Backspacing to Delete a Word

fied copy should be three units each, just as they o4 fied copy should be three units each, just as

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Paragraph Ending (Short Line)

1. Complete the practice paragraph by typing the last two lines as you see them below. But, after typing the rough copy of the last line, stop and look at the colors in the Justification Window.

2. There are small bands of color in the Window, but the color has not yet moved far enough to the left to get to zero. This means there are not enough Space Bar strokes in the line for automatic justification. Since this is a paragraph ending, retype the line in the justified column and let it stop short of the margin. To make the last line more pleasing visually, you should select, for the Space Bar Value Dial setting, the lowest Space Bar value used to justify the other lines in the paragraph. In this paragraph, that would be the black wedge – 3 units – used for the O.K. lines.

Paragraph Ending (Short Line)

they were in the rough-line copy. Make the Justification Dial setting black zero.

gl they were in the rough-line copy. Make the
– Justification Dial setting black zero.

2. Now go back and justify all six lines you have just finished doing, following exactly the same procedure (backspacing, crossing out, etc.).

3. Finally, justify the same copy serially.

H. Justification Variations

Objective: Learn several variations of the normal justification pattern and how they are produced through the reservation of white space.

Information: In order to achieve special arrangements of typeset copy, it is important to realize that in justification, the Composer is actually reserving white space (the unprinted area), which is as much a part of the format as the characters themselves. Some of the special formats include slanting margins, hanging indentions, numbered paragraphs, and run-around or contour copy:

Slanting Margins

Slanting margins look fancy, and they are very easy to create. When you are planning to slant both the left and right margins, you increase the number of prefix letters by two for each successive line, beginning with the second line. But only one of each pair of prefix letters is dropped when no-printing these letters for the finished justified copy.

Hanging Indentions

Special effects are created by varying the formats used for setting up copy. This illustration of a hanging indent is one of many varieties used. The simplest way to prepare copy with a hanging indent is to set a tab for the indented lines. With this method, no special justification procedure will be required.

Special Effects

Classical music is exploding in New York. Among the rich, and the not so rich. Among the young, and the not so young. Our audience is constantly expanding because we're *the* AM-FM/Stereo classical music station in New York. Our listeners are people who know more, earn more, and buy more than the average person. So whether you're selling soap or soup, let QXR put you in touch with the people who listen.
WQXR
1560AM 96.3FM/STEREO
THE RADIO STATIONS OF THE NEW YORK TIMES

Spacing (with the Justification Lever pulled down) to reserve white space results in *different sizes of space* between the rough and final copies. It is possible, however, to reserve a specific area of white space to achieve the desire format by adopting the following procedures:

A. **Spacing first.** – Space *before* pulling down the Justification Lever when typing the rough-copy line. For the second, justified line, again space first, then set the Justification Dial.

B. **Tabbing.** – Set the needed tabs. Then pull the Justification Lever down. Tabulate (with Justification Lever down) and type the rough-copy line. For the justified line, set the Justification Dial, tab the Composer, and type the copy. *The tabbing method of reserving white space can only be used when the white space is at the beginning of a line.*

C. **Typing Fixed Spaces.** – By typing a character or combination of characters as if it were part of the copy, fixed space may be reserved. The character(s) selected should be *equal in unit value* to the desired white space. Normal Justification-Lever and Dial procedures are used, but in typing the rough copy, the fixed-space character(s) are keyed. The justified lines are typed as usual, *except that the fixed-space character(s) are not printed.* This involves the use of the **No-Print Key.**

   The **No-Print Key** permits typing without actually printing the character keyed. The Type Font does not contact the paper, but since the same escapement (movement of the Carrier) occurs as when a character is printed, the machine's memory accepts the unit count of the particular character. The No-Print Key is engaged by pushing down and away. It is released by pulling forward, with pressure relaxed on the key.

UNIT 8 – IBM SELECTRIC COMPOSER

I. Paragraph Indentions and Numbered Paragraphs

Objective: Be able to typeset indented paragraphs and numbered paragraphs.

Information: **Paragraph indentions.** – For most paragraph indentions, the most efficient method is the use of the tab. If, however, specialized work is being set where the tab cannot be set, the fixed-space method should be used. (For example, suppose a paragraph indention of 18 units is required. A tab cannot be set, since tabs are set on *picas*, and a pica is 12, 14, or 16 units, depending on the size of type being used. In this example, *two m's* using the *No-Print* function, would be the method to use. (An *m* is 9 units wide.)

Numbered paragraphs. – If the numbered paragraph is as shown below, with the following lines flush-left under the number, the *Spacing First* procedure page 85) should be used:

> 1. **The first step in justification is to determine the length of line you want for final copy.**

The Justification Lever for the rough-copy line is pulled down *after* the "1", the period, and the space have been typed. Likewise, when the line is retyped for justification, the Justification Dial is *not* set until *after* the "1", the period, and the space have been typed. Only in this way can the spaces following the numbers be kept uniform.

If the format of the numbered paragraphs call for indention of *each* text line, with the numeral and period to the left (as shown here)

> 1. **The first step in justification is to determine the length of the line you want for final copy.**

it is necessary to follow these steps:

Do the first line as before.

Begin each *unnumbered* line with spaces *before* pulling down the Justification Lever for the rough-copy line, and again before setting the Justification Dial for the justified line. (Since all numbers on the Composer have a value of 6 units, and the period has a value of 3 units, set the Value Dial at 3; space twice for a number, once for the period, and once for the space.

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Important: When using the space-first method of reserving space, the Value Dial must be moved back to *3* if it is on any other number as a result of justifying the previous line.

Student Activity:

Follow the instructions below to typeset the numbered-paragraph material reproduced here.

Machine Adjustments

1. Use a 10-point type with 12-point leading.
2. Set margins for a 19-pica writing line.
3. Set tabs one pica from the left margin, and to the right of the right margin.

White space can be created in justified Composer copy easily by one of three methods or by combining the methods. The methods are: g7 o7

1. The method of spacing first, then pulling down the Justification Lever on the rough copy. For final copy, again, spacing before setting the Justification Dial. g3 g6 x0
2. Setting a tab and tabulating (with the Justification Lever down) before typing on the rough copy. For final copy, set the Justification Dial, tab and type the copy. b1 x0 b3
3. The fixed-space method reserves space by typing a character(s) as if a part of the rough copy with the J-Lever down. The unit value of the typed character(s) equals the reserved space. For final copy set the Dial, no-printing the fixed-space character(s). b2 b1 b4 b4 o3

Rough Copy

1. The paragraph indention is to be 17 units. Tab (one pica is 14 units in yellow escapement) and space once with the Space Bar Value Dial set on 3.
2. Pull down the Justification Lever, and type the first line.
3. Note scale reading, tab, and record it.
4. Type the rest of paragraph in usual manner.
5. Release the Justification Lever *before* typing the numbered paragraph.
6. To begin the numbered line: Tab, type "1", and strike the Space Bar twice.
7. Pull down Justification Lever, and type the rest of line as usual.
8. Note scale reading, tab, and record it.
9. Carrier return and release the Justification Lever.
10. Set Space Bar Value Dial on 3.

11. To begin the unnumbered line: Tab and strike the Space Bar 5 times (twice for the number, once for the period and once for each of the two spaces).
12. Pull down the Justification Lever and type copy for unnumbered line in usual manner.
13. Note scale reading, tab, and record it.
14. Follow two sets of procedures as outlined: Steps 9 to 13 for unnumbered lines and steps 5 to 8 for numbered lines. Complete the project.

Final Copy

1. Tab and space once (Value Dial at 3) for the paragraph indention.
2. Set Justification Dial and type the first line.
3. Type the rest of paragraph in usual manner.
4. Set Space Bar Value Dial for 3.
5. To begin the numbered line: Tab, type "1.", and space twice.
6. Set Justification Dial and type copy for numbered line.
7. Set Space Bar Value Dial for 3.
8. To begin the unnumbered line: Tab, and space 5 times.
9. Set Justification Dial and type copy for unnumbered line.
10. Follow procedures outlined for numbered lines (steps 4 to 6) and unnumbered lines (steps 7 to 9) to complete the project. Your final copy should look like this.

White space can be created in justified Composer copy easily by one of three methods or by combining the methods. The methods are:

1. The method of spacing first, then pulling down the Justification Lever on the rough copy. For final copy, again, spacing before setting the Justification Dial.
2. Setting a tab and tabulating (with the Justification Lever down) before typing on the rough copy. For final copy, set the Justification Dial, tab and type the copy.
3. The fixed-space method reserves space by typing a character(s) as if a part of the rough copy with the J-Lever down. The unit value of the typed character(s) equals the reserved space. For final copy set the Dial, no-printing the fixed-space character(s).

UNIT 8 – IBM SELECTRIC COMPOSER

J. Slanting Margins

Objective: Be able to typeset copy with slanting margins.

Information: The procedures described for slanting margins, left, right and combined left and right, can also be used for setting any irregular pattern.

Procedures: A. **Slanting Left Margin:** First, figure out the number of units needed for the indention. Then choose a letter or combination of letters equal to this value. (See Unit-Value Chart on page 76 of this manual). Set margins for the width necessary to set the longest line. Pull down Justification Lever and type the first line as would be normally done for justification, making a notation of the setting to use for final copy.

Before typing the second line, a letter equal in value to the width of the needed indention should be selected. The second line should then start with one of those letters; the next line with two of those letters; the next with three; etc.

When typing the justified copy, the Justification Dial must be set for each line. Beginning with the second line, the No-Print Key must be depressed, and the proper number of the "indent" characters typed. The No-Print Key is then released and the typing of the line completed.

Margins may be slanted any number of units	b-2	Margins may be slanted any number of units
mper line which you feel appropriate for the	b-1	per line which you feel appropriate for the
mmjob. The unit value of IBM Composer	g-5	job. The unit value of IBM Composer
mmmcharacters varies from three to nine.	g-5	characters varies from three to nine.
mmmmSelect a letter which contains the	w-3	Select a letter which contains the

B. **Slanting Right Margin:** – Rough copy is typed exactly as was done for typing the slanting-left margin. For the justified copy, the extra letters *are not typed*, but the Justification Dial must be set for *each* line before typing. Each line will begin at the left margin, and the right will be automatically slanted as shown here.

Margins may be slanted any number of units	b-2	Margins may be slanted any number of units
mper line which you feel appropriate for the	b-1	per line which you feel appropriate for the
mmjob. The unit value of IBM Composer	g-5	job. The unit value of IBM Composer
mmmcharacters varies from three to nine.	g-5	characters varies from three to nine.
mmmmSelect a letter which contains the	w-3	Select a letter which contains the

C. **Slanting Both Margins:**– The procedure for slanting both margins is the same as for slanting one, except that fixed-spacing letters are used for *two* margin areas instead of for one. All the fixed-spaced letters are typed *in front of* the rough-copy line.

Margins may be slanted any number of	**r-4**	**Margins may be slanted any number of**
mmunits per line which you feel appropriate	**b-1**	**units per line which you feel appropriate**
mmmmfor the job. The unit value of IBM	**o-7**	**for the job. The unit value of IBM**
mmmmmmComposer characters varies from	**b-3**	**Composer characters varies from**
mmmmmmmmthree to nine. Select a letter	**o-2**	**three to nine. Select a letter**

For the justified copy, the first line is justified normally. For the second line, use the No-Print Key for *only one* fixed-spacing letter and then type the rest of the line. Each succeeding line is typed with an increasing number of fixed-space letters.

Student Activity:

Follow the instructions below to produce two slanting margins on the copy.

Machine Adjustments

1. Set up your machine for a small type style (blue triangles on Font, Justification Tube, and Escapement Lever). Adjust Leading Dial for two-point leading.
2. Set margins for a 22-pica writing line.
3. Set a tab to the right of the right margin.

Slanting margins look fancy, and they are very easy to create. When both	**b11**
Mmthe left and right margins are to slant, you increase the number of pre-	**b6**
MmMmfix letters by two for each successive line, beginning with the	**w2**
MmMmMmsecond line. Only one of each pair of prefix letters is dropped	**b11**
MmMmMmMmwhen no-printing these letters for the final justified copy.	**o4**

Rough Copy

1. Pull down Justification Lever, and type first line in usual manner.
2. Note scale reading, tab, and record it.
3. Begin second line with *two* m's (no space after second m) and complete line in usual manner.
4. Note scale reading, tab, and record it.
5. Begin next line with *four* m's (no space after last m) and complete the line.
6. Note scale reading, tab, and record it.
7. Follow same procedure for rest of project, remembering to begin each line with two more m's than were used in the preceding line.

Final Copy

1. Set Justification Dial and type the first line.
2. Return Carrier and set Justification Dial for the second line.
3. Depress No-Print Key and type *one* m.
4. Release No-Print Key and type rest of line.
5. Return Carrier and set Justification Dial for the third line.
6. Depress No-Print Key and type *two* m's
7. Release No-Print Key and type rest of line.
8. Follow same procedure for rest of project, always remembering to begin each line with *half as many m's* as typed for that line in the rough copy. Your final copy should look like this.

Slanting margins look fancy, and they are very easy to create. When both the left and right margins are to slant, you increase the number of prefix letters by two for each successive line, beginning with the second line. Only one of each pair of prefix letters is dropped when no-printing these letters for the final justified copy.

K. Leader Lines

Objective: Be able to set leader lines in a table-of-contents format.

Information: Leader lines (pronounced LEEDer) are a series of dots used to fill out a line or to *lead* the eye from a column of copy printed on the left to copy printed on the right, such as in a table of contents or a price list. We use the period (.) for typing leader lines on the Composer. Leaders are typed at every whole- and half-pica mark on the scale. The first period starts at the first available even pica.

To type leaders every half pica, the Justification Dial is set for the appropriate Space-Bar value. This value must permit typing a period and one space, and automatically be positioned on the next whole- or half-pica mark on the Scale.

Let us look at the following table:

Type Size	Units Per Inch	Units Per Pica	Units Per Half-Pica
Large (red)	72	12	6
Medium (yellow)	84	14	7
Small (blue)	96	16	8

Regardless of size of type, the period takes 3 units. If we are using small-size type, then, based on the last column in the above table (8 units for small type), we must set the Space-Bar value at 5 (3+5 = 8). Then depressing a period (3 units) and the space bar (5 units) will put the next period exactly at the next half-pica mark.

In this way the dots will be spaced uniformly, and all will be lined up vertically.

For large type and wide measure, you may prefer to type the dots at each whole-pica mark only, using a Space-Bar value of 9.

Student Activity:

Follow the instructions below to type this table of contents.

Functions and Objectives 1

Typical Procedures 5

Open Item 5

Balance-Forward 14

Procedural Details 20

Accounting Control 20

Aged Trial Balances 24

Dating 27

History and Reference Information 28

Mechanized Cash Posting 32

Industry Approaches 34

Retail Accounts Receivable 35

Public Utility Accounts Receivable 41

Loan Accounting 48

Data Processing Systems 52

Glossary 54

Bibliography 56

1. Set margins for 22 and 46.
2. Set a tab at 45.
3. Select a 10-point type style, bold and normal weights. Place the bold on the machine for the first line.
4. Set Escapement Lever on yellow.
5. Set Leading Dial for 16.
6. Notice that extra leading has been added before each major heading in bold. Use the Point Ruler on the Conversion Scale to measure the number of points you will want to add manually (6) and note that number on your copy.
7. Type "Functions and Objectives," in bold font.
8. Depress Tab Locate and tab to next pica.
9. Set Value Dial for 4.
10. Type a period, space once, type another period, space, etc., until you get to 44.
11. Switch Value Dial back to 3.
12. Tab to 45.
13. Space twice (6 units) and type the number 1.

14. Return Carrier.
15. Manually space-up six more points.
16. Type "Typical Procedures," leader lines, and number 5 – following the procedure explained above.
17. Return carrier.
18. Remove bold type font and replace with medium.
19. Continue as before, using automatic leading.
20. Add six points manually before each line in bold type.

L. Leaders With Justified Right-Hand Columns

Objective: Be able to set leaders with justified right-hand columns.

Information: When the information in the right-hand column varies in length and is to be justified, the material in the text columns (left and right) must be typed first, and the leaders filled in later.

The following procedure is used: Do not pull down the Justification lever. For the rough copy, type the left portion of the line. *Without spacing,* type the right column. Then a series of m's is typed until the white mark in the Justification Window tells you you have typed as far as you can without going off the scale. Take a reading of how many units you are from the margin. Tab to the side and record the number of m's you typed, plus the number of units you are from the right margin.

For the final copy, type the first part of the line, depress the No-Print Key, and type the same number of m's as were typed in the rough copy. Space for the number of units your scale said you were short of the margin. With the No-Print Key released, type the rest of the line.

Use the Zero Index Lever to return the Carrier to the left margin. Press the Tab-Locate key and, using the Tab Key, get the Carrier to the point where the leaders are to begin. At this point the leaders are typed, following the procedure of the previous lesson.

Student Activity:

Typeset the following table:

District One	Boston
District Two	New York
District Three	Philadelphia
District Four	Atlanta
District Five	Detroit
District Six	Chicago
District Seven	Kansas City
District Eight	Dallas
District Nine	San Francisco
District Ten	Los Angeles

Machine Adjustments

1. Set margins for 14 and 36.
2. Set a tab at 40.
3. Set 10-point type on 16 points with appropriate machine adjustments: Leading Dial set at 16; yellow coding for Font, Escapement Lever setting, and Justification Tube.
4. True up the Justification Window scale.

Rough Copy

1. Type "District One" and do not space. (Do not pull down Justification Lever.)
2. Type "Boston" and do not space.
3. Type a series of m's, capitalizing every fifth letter (to help in counting them). Type m's until white line in Justification Window comes to a number less than 9 on scale.
4. Tab and type the scale reading (+2).
5. Follow same procedure for rest of rough-copy lines.

District OneBostonmmmmMmmmmMmmmmMmmmmMmmmm	+2
District TwoNew YorkmmmmMmmmmMmmmmMmmmmMmm	+3
District Three?hiladelphiammmmMmmmmMmmmmMmmmM	+6
District FourAtlantammmmMmmmmMmmmmMmmmmMmmm	+5
District FiveDetroitmmmmMmmmmMmmmmMmmmmMmmmm	+0
District SixChicagommmmMmmmmMmmmmMmmmmMmmmm	+2
District SevenKansas CitymmmmMmmmmMmmmmMmmmM	+8
District EightDallasmmmmMmmmmMmmmmMmmmmMmmmm	+1
District NineSan FranciscommmmMmmmmMmmmmMmmmM	+3
District TenLos AngelesmmmmMmmmmMmmmmMmmmmMm	+7

Final Copy

1. Type "District One." Do not space.
2. Depress No-Print Key, and type the same number of m's as typed for this line of rough copy.
3. Release No-Print Key.
4. Space number of units indicated in scale reading recorded for this line. (If this involves moving the Space Bar Value Dial, keep your hand on the Dial as you space to remember to move it back to 3. If it calls for spacing only one or two units, leave the Value Dial at 3, depress Space Bar once, then backspace one or two units.)
5. Type "Boston."

6. Pull forward on Zero Index Lever, and hold it forward as you return Carrier to left margin. Then release lever.
7. Using Tab Locate, tab to first pica to right of "District One."*
8. Set Space-Bar Value Dial for 4.
9. Type a period, space; type a period, space; etc., to fill out the line.
10. Return Space Bar Value Dial to 3.**
11. Return Carrier, and repeat procedure for rest of project.

* If you would like the first leader dot to be closer to copy than where Carrier is now resting, backspace the number of units in a half pica (7 for yellow coding).

** To avoid this switching from 3 to 4, then back to 3, you may prefer typing the copy with 4-unit spaces between words. Of course, this decision must be made before doing the rough copy typing for the number of m's typed and scale reading to be accurate. Do this exercise as instructed above for practice. Then, if you care to, try a few lines with the 4-unit spacing for comparison.

M. Horizontal Centering

Objective: Be able to center copy horizontally on the IBM Selectric Composer.

Information: Centering horizontally simply means placing white space equally to the left and right of printed copy. Exact centering is a *must* when working in small areas, such as centering in boxes for forms construction.

When copy is to be reproduced in the same format in which it was received, simply place the transparent plastic scale or the Pica Ruler on the Conversion Scale over the material being copied, noting the number of picas where the typing is to begin.

Most of the time you will have to do the centering yourself. The sliding Centering Scale superimposed on the Carrier-Position Scale permits horizontal centering automatically. The following steps would be followed to center a heading:

1. Determine the center of the paper. If it is 8½ inches wide, it is 51 picas wide. Half of 51 is 25½ picas.

2. With the paper inserted with the left edge alined with zero on the Paper Table Scale, position the Carrier with the center point at 25½ on the Carrier-Position Scale.

3. The Centering Scale is moved so that zero is at 25½.

4. Depress the No-Print Key and type the heading.

5. Check the position on the *Centering Scale*. If the red Position Indicator is at 10, for example, the Carrier is backspaced so the red pointer points to the number 10 to the *left* of zero on the Centering Scale.

6. The No-Print Key is then released and the heading is typed. It has been centered horizontally.

Suppose you have to type a heading for a column or in a box. The principle is the same.

1. First find out how wide the column is – by measuring with your ruler, or by checking the Carrier Position Scale as you move the carrier from one edge of the column to the other. Let us assume the column is 12 picas wide.

2. With the help of the Card Holder, move the Carrier so that the short mark on the Holder is exactly at the left edge of the column.

3. Move the Sliding Centering Scale so that the red positioning arrow points to the number 12 *to the left* of the zero. This puts the zero of the Centering Scale in the exact center of the column.

4. Now move the Carrier so the red arrow points to this zero.

5. Press the No-Print Key; type the heading.

6. Note the number the arrow is pointing to on the *Centering Scale.* Backspace the carrier until the arrow points to that number to the *left* of the zero on the centering scale.

7. Release the No-Print Key. Type the heading.

Student Activity:

Trace the three boxes included within the large rectangle on the next page. Type the copy for those three boxes. Follow the instructions below. (Since we are concerned here with horizontal centering only, just estimate vertical placement within boxes.)

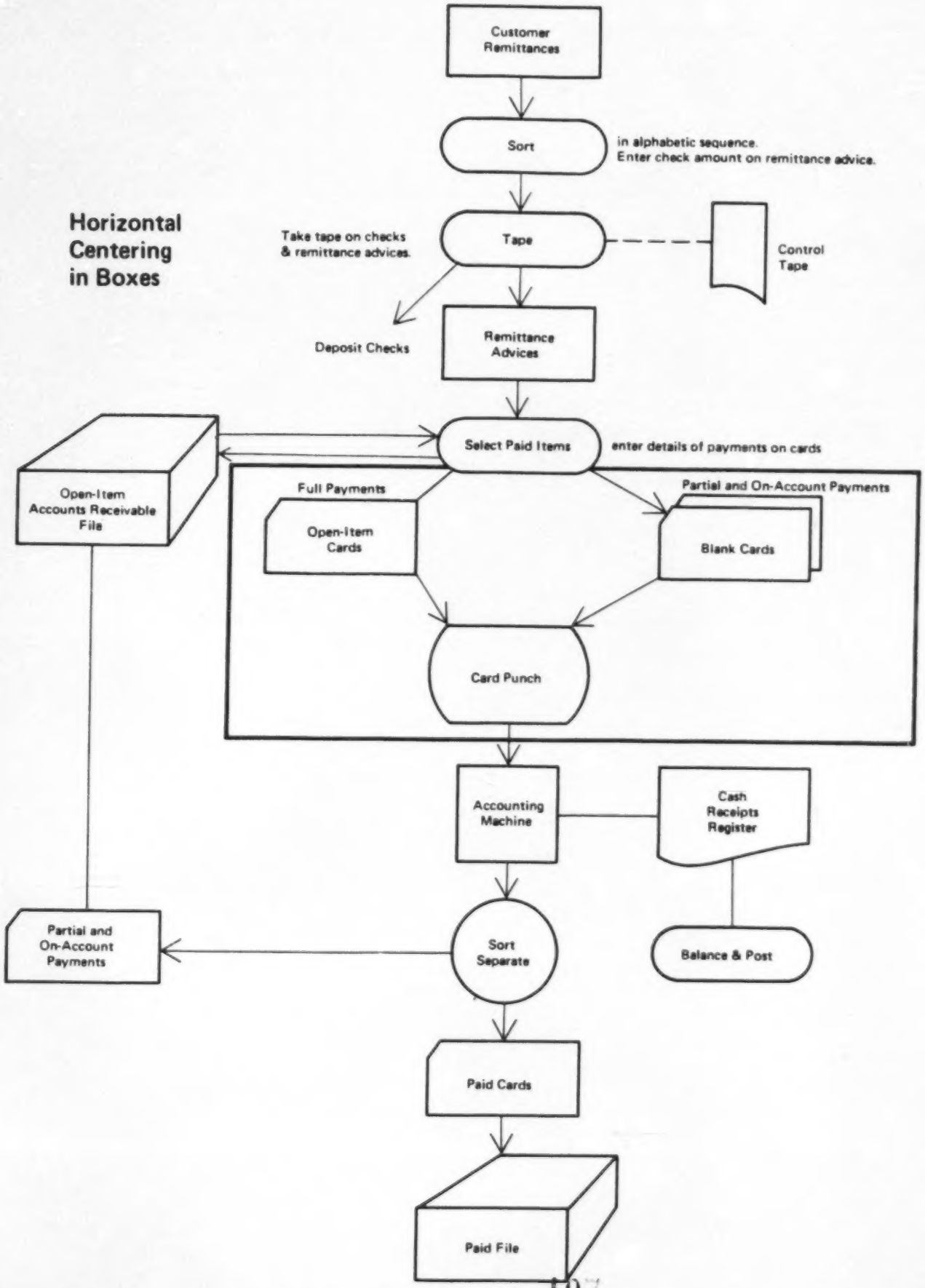
Machine Adjustments

1. Use a 7- or 8-point type with Escapement Lever set on blue, Leading Dial on 9.
2. Set margins for 6 and 46.
3. Proceed with first step of centering (below) before inserting paper into machine.

Centering

1. Measure boxes with the Pica Ruler on the Conversion Scale. Notice they are 7 and 7½ picas wide.
2. Insert paper into machine, and select one of the 7-pica boxes to begin with.
3. Position Carrier at left edge of box. (Move Carrier to point where the short mark at top of Card Holder is near the left edge of box. Then get the exact location by sliding the Card Holder to the right and using the long vertical line on it as a more exact reference line.)
4. Move Sliding Centering Scale to point where number 7 at *left* of zero is alined with the red Carrier Position Indicator. This automatically places the zero of the Centering Scale in the middle of the box.

Horizontal Centering in Boxes



5. Move Carrier until the red Indicator is lined up with zero on Centering Scale in the middle of the box.
6. Depress No-Print Key. Type the copy.
7. Note the number that the red arrow is pointing to on the Centering Scale. Backspace the carrier until the arrow points to that number to the *left* of the zero on the same scale.
8. Release the No-Print Key and type the copy.
9. Follow the same procedure for the other two boxes.

N. Vertical Centering

Objective: Be able to center copy vertically on the IBM Selectric Composer.

Information: Centering vertically is getting equal amounts of white space above and below the printed impression on the page.

For centering purposes the *actual* height of the characters must be considered. For example, when vertically centering *cap words*, the point size of the *capital* letters must be considered, *not* the full point size of the particular type face. *(Reminder:* Type sizes are based on measurements from the top of the ascender to the bottom of the descender.) As cap letters have no descenders, nothing will print below the base line.

1. For vertical spacing use the horizontal line on the plastic Card Holder as a guide. This line runs along the *base line* of the typed copy.

2. Measure the *height of the box* in which copy is to be set with the point ruler. (If the paper is in the machine, the height may be measured by alining the horizontal line on the Card Holder with the top of the box, then turning the Platen Knobs and counting the number of "clicks" from the top of the box to the bottom.)

3. Determine the *depth (height) of the copy.*

   a. For one-line copy, use the *full point size* if typing upper and lower case, the *cap height* if typing all in upper case. (See chart, page 105.)
   b. For two or more lines, find the number of points taken up by each line *plus* the amount of leading between lines.

4. Once you know the depth of copy to be centered (step 3) and the total amount of space available (step 2), centering becomes simple mathematics. Subtract the depth of the copy from the space available, and divide the result by two. The number of points resulting is inserted above the copy (and will also appear at the bottom).

5. Now position the paper at the proper level to begin typing. To do this, aline the horizontal line on the Card Holder with the top line of the box and work down from that point.

a. For one-line copy, simply space down first the number of points of blank space and then the number of points for the copy. (Full point size for upper and lower case; Cap height for caps only.)
b. For two or more lines of copy, set the leading dial according to type size plus the inter-line leading. (Example: to set two lines of all caps, using 10-point type, 2-point leading: Cap height is 7 points; 7 plus 2 equals 9; the Leading Dial is set at 9. Space down for the blank space and then seven more points to the base line.)

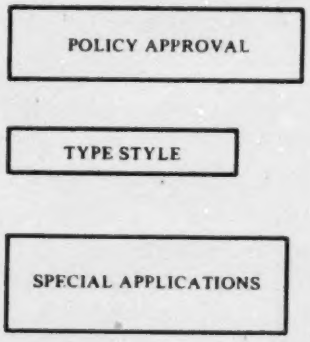
Student Activity:

Trace the boxes below and on the next page, and type the following exercise.

Machine Adjustments

1. Look at the Cap Height Chart and select an 8-point type style which has a 5-point cap height.
2. Insert this Font on machine, and set Escapement Lever on blue.

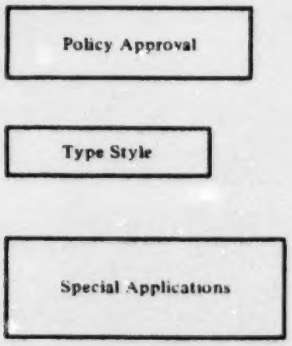
Centering One Line of All Caps



1. Use Point Ruler and measure box to determine total depth available (30 points).
2. 30 points (space available)
   - 5 points (cap height)
   25 points to be divided between top and bottom margins
3. 25 divided by 2 = 12 points in one margin (top) and 13 in the other (bottom).
4. 12 points in top margin +5 points in copy = 17 points to come down to begin typing.
5. Line up horizontal alinement mark on Card Holder with top line of box.
6. Click down 17 points, and you are ready to do the horizontal centering.

7. Find the proper starting position by centering horizontally. Type the copy.
8. Repeat for rest of this portion of vertical centering practice. (Numbers will be different, but the procedure the same.)

Centering One Line of Both Upper- and Lowercase Letters



1. Measure box (30 points).
2. 30 points (space available)
   - 8 points (point size of type)
   22 points to be divided between top and bottom margins
3. 22 divided by 2 = 11 points in each margin.
4. 11 points in top margin +5 points (cap height to get to base line) = 16 points to come down to begin typing.
5. Aline horizontal line of Card Holder with top line of box.
6. Click down 16 points, and you are ready to do the horizontal centering.
7. Find the proper starting position by centering horizontally. Type the copy.
8. Repeat for rest of this portion of vertical centering practice. (Numbers will be different, but the procedure the same.)

Capital-Letter Height Chart

Name	Size	Height in Points
Aldine Roman	8 Medium, Bold, Italic	5
	10 Medium, Bold, Italic	6
	12 Medium, Bold, Italic	7
Baskerville	8 Medium, Bold, Italic	5
	9 Medium, Bold, Italic	6
	11 Medium, Bold, Italic	7
Bodoni	8 Medium, Bold, Italic	6
	10 Medium, Bold, Italic	7
	12 Medium, Bold, Italic	8
Century	6 Medium, Bold, Italic	5
	8 Medium, Bold, Italic	6
	9 Medium, Bold, Italic	7
	10 Medium, Bold, Italic	7
	11 Medium, Bold, Italic	8
Classified News	6 Medium, Bold	4.5
	8 Medium, Bold	6
	10 Medium, Bold	7
Copperplate Gothic	6 Medium	5
	8 Medium	6
	10 Medium	7
	12 Medium	8
Journal Roman	8 Medium, Bold, Italic, Bold Italic	5
	10 Medium, Bold, Italic, Bold Italic	6
	11 Medium, Bold, Italic, Bold Italic	7
Press Roman	7 Medium, Italic	5
	8 Medium, Bold, Italic, Bold Italic	6
	9 Medium, Bold, Italic, Bold Italic	6
	10 Medium, Bold, Italic, Bold Italic	7
	11 Medium, Bold, Italic, Bold Italic	8
Pyramid	8 Medium, Italic	5
	10 Medium, Italic	7
	12 Medium, Italic	8
Theme	8 Medium, Bold, Italic	6
	10 Medium, Bold, Italic	7
	11 Medium, Bold, Italic	8
Univers	7 Medium	4.5
	8 Light, Medium, Bold, Medium Italic	5
	10 Light, Medium, Bold, Medium Italic	7
	11 Light, Medium, Bold, Medium Italic	8
Univers Condensed	10 Medium, Bold, Medium Italic	7
	11 Light, Medium, Bold, Medium Italic	8

The following two Vertical Centering Charts together make a shortcut for vertically centering lines in small areas. (Additional charts are available in the IBM Instruction Manual.) The charts tell how many points *to come down from the top of a box to begin typing the first line.* You need to know the cap height of your type, the copy depth, and the depth of the area involved.

To illustrate how to use the charts, assume your cap height is 8 points, copy depth 25 points, and area depth 28 points. Run your finger across the line for cap height 8 until you come to the number representing the copy depth, 25. Then run your finger down to the lower chart until it is on the line for a depth of 28. The number on which your finger then rests (10) is the number of points to come down from the top to start typing.

Cap Height*	Total Copy Depth—Points																			
5	-	-	-	-	-	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
6	-	-	-	-	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
7	-	-	-	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	
8	-	-	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	
9	-	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
10	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	

Area Depth—Points																				
20	13	12	12	11	11	10	10	9	9	8	8	7	7	6	6	-	-	-	-	
21	13	13	12	12	11	11	10	10	9	9	8	8	7	7	6	6	-	-	-	
22	14	13	13	12	12	11	11	10	10	9	9	8	8	7	7	6	6	-	-	
23	14	14	13	13	12	12	11	11	10	10	9	9	8	8	7	7	6	6	-	
24	15	14	14	13	13	12	12	11	11	10	10	9	9	8	8	7	7	6	6	
25	15	15	14	14	13	13	12	12	11	11	10	10	9	9	8	8	7	7	6	
26	16	15	15	14	14	13	13	12	12	11	11	10	10	9	9	8	8	7	7	
27	16	16	15	15	14	14	13	13	12	12	11	11	10	10	9	9	8	8	7	
28	17	16	16	15	15	14	14	13	13	12	12	11	11	10	10	9	9	8	8	
29	17	17	16	16	15	15	14	14	13	13	12	12	11	11	10	10	9	9	8	
30	18	17	17	16	16	15	15	14	14	13	13	12	12	11	11	10	10	9	9	
31	18	18	17	17	16	16	15	15	14	14	13	13	12	12	11	11	10	10	9	
32	19	18	18	17	17	16	16	15	15	14	14	13	13	12	12	11	11	10	10	
33	19	19	18	18	17	17	16	16	15	15	14	14	13	13	12	12	11	11	10	
34	20	19	19	18	18	17	17	16	16	15	15	14	14	13	13	12	12	11	11	

*Cap height is used for simplicity. It is accurate to a fraction of a point in most instances. However, there are lower case letters, such as b, d, f, and l, which may extend slightly above capital letters in certain type styles. Only in limited cases will the difference be as much as a point or more higher than cap height.

UNIT 8 – IBM SELECTRIC COMPOSER

O. Tabulations

Objective: Be able to set tabulated matter on the Composer.

Information: Take advantage of the tabulation ability of the Composer as much as possible, to save time and effort. The Carrier will stop at a tab setting when the Tab Key is depressed if it is as close as four units to that stop.

Tabs can be set only at whole-pica divisions. If the spacing is so tight that a column cannot begin at a whole-pica spot, the tab should be set for the *nearest* pica, then spaced forward a few units to begin typing. Notes in pencil on the original copy will serve as reminders for the number of units needed in such a case.

Procedure:

1. Determine the type size to use and the margins to be typed.

2. Type the longest line in each column. Do *not* space after the last character.

3. Figure out the *number of units left over for distribution between columns.* Take a count of these units by *spacing to the right margin.* (Set the Space-Bar Value Dial at 5 for ease in counting).

4. As the Carrier approaches the right margin, and the white line in the Justification-Tube Window reaches a number which is less that 5, spacing is stopped. The remainder is added to the number of units already spaced across.

5. You now have the total number of units of "leftover" space. This should be divided by the number of spaces between columns. (For example, if there are four columns, there would be three spaces, and the total number of units would be divided by three.)

6. Tab settings are determined by returning the Carrier to the left margin, and the longest line in the first column is typed. Then space the number of units just calculated.

7. The Carrier Position Indicator now points to the position where the second column is to begin. On the original copy, hand-write this position. Type the longest line in the second column and repeat the procedure. Keep doing this until you reach the place where the last column is to begin.

8. Return the carrier to the left margin. Set a tab at the whole-pica numbers closest to the numbers written on the original copy.

For example, assume you are setting up the following statistical table with large type (Escapement Lever on red) and with margins of 10 and 41.

District 1	District 2	District 3	District 4	District 5
$234,234.00	$234,234.00	$234,234.00	$234,234.00	$234,234.00
38,920.50	40,392.50	29,987.00	39,111.50	30,000.50
135,492.50	189,483.50	139,308.00	153,829.00	135,789.00
33,394.00	583,293.00	534,245.50	555,555.50	532,423.50
357.50	789.50	678.00	567.00	890.00
57,390.00	89,234.00	78,987.50	65,382.50	67,390.00
300,000.00	400,000.00	200,000.00	300,000.00	400,000.00
983,490.50	899,493.50	789,534.00	977,500.00	978,450.00
834.00	378.00	385.00	900.00	753.00
1,503.50	5,110.50	3,151.00	4,963.50	2,250.00
15,500.00	18,750.00	12,300.00	15,378.50	16,391.50

Type the longest item in each column. Do not space after the last character in a column. Your rough copy will look like this:

$234,234.00$234,234.00$234,234.00$234,234.00$234,234.00

Now you want to find out how many units are left over to be distributed between columns. Count them by spacing across to the right margin. Set the Space-Bar Value Dial on 5 (for ease in counting) and count by 5's as you space across.

As your Carrier approaches the right margin, the white line will start moving across the Justification Tube Window. Watch the white line, and when it gets to a number on the Window scale which is less than 5, stop spacing. Add this remainder to the number of units you have already spaced across.

(In the preceding example, spacing five units at a time will give 70 units. The white line is then on 2, so the total number of units to be placed between columns is 72.)

For this chart you have four areas between the five columns in which to place the 72 units. Dividing 72 by 4 gives you 18 units of space between columns.

Since this sort of table should have column spacing as uniform as possible, we will take extra steps to achieve this.

To decide where to set tabs, return the Carrier to the left margin, and type the longest item in the first column. Then space 18 units. The Carrier-Position Indicator points to 16 ½, where the second column will begin. At the beginning of the second column on the original copy, write 16 + 6 (a half pica in red escapement is 6 units).

Then type the longest line in the second column and space 18 units. The Indicator is exactly on 23. At the beginning of the third column on the original copy, write 23. Repeat this procedure for all the columns, and you will have written 16 + 6, 23, 29 + 6, and 36. The copy from which you are typing will look like this.

District 1	District 2	District 3	District 4	District 5
	16+6	23	29+6	36
$234,234.00	$234,234.00	$234,234.00	$234,234.00	$234,234.00
38,920.50	40,392.50	29,987.00	39,111.50	30,000.50

(When following the above procedure to determine tab stops, the Carrier-Position Indicator may not fall exactly on a whole- or half-pica scale mark. In such cases, as you backspace with the one-unit Backspace Key, count the backspaces necessary to aline the Indicator exactly with a scale mark. On the original copy, write the number of the scale mark *plus* the number of backspaces counted. *Before* typing the longest item in the next column, reposition the Indicator by spacing forward.)

Now you are ready to set tabs. Return the Carrier to the left margin and set a tab at each of the whole-pica numbers written on the copy. Remember to use the Tab-Locate Control to position the Carrier at the places where you want to set tabs.

Student Activity:

Typeset the following chart, following the instructions given below:

Title of Publication	Description	Machines Used	Form No.
Mechanized Cash Posting	A–Bul.	Unit Record	H20–0034
Public Utility Customer Accounting with Series 50	A–GIM	Series 50	H20–C964
Punched Card Accounts Receivable Controls	A–Bul.	Unit Record	H20–0051
Telephone Revenue Accounting	A–GIM	Unit Record	H20–0014
IBM 650 for Public Utility	A–Brief	650 Unit Record	H20–6678

Public Utility Customer Accounting with Series 50A–BriefUnit RecordH20–0034

Public Utility Customer Accounting with Series 50 A–Brief Unit Record H20–0034

Machine Adjustments

1. Use 11- or 12-point type with Leading Dial on 15.
2. Set margins at 5 and 46. Clear all tabs.
3. True up the Justification Tube.
4. Check to see that Space Bar Value Dial is on 3.

Rough Copy to Determine Tab Settings

1. Type longest item in each column. Do not space between last letter in one column and first letter in next.

2. Space to right margin, counting units as you space. Set Space Bar Value Dial on 5 for easy counting. *Leave your right hand on the Dial;* space with left hand; remember to move the Dial back to 3 when you reach right margin. Watch for white line to appear in Justification Window to get an exact count. (After you space and count 105 units, the white line will be at 1 on the scale, indicating you have one more unit remaining to the margin. Total number of units between copy and right margin is 106.)

3. Use your judgement in apportioning number of units available (106) between columns. For a pleasing appearance, it is desirable in this project to leave more space between the first and second columns and an even amount of space between the others. An arbitrary decision could be 46 units in the first space between columns and 30 units in each of the other two.

4. Return Carrier to left margin and set Value Dial to 3. Type longest item in first column.

5. Space 46 units. (Set Value Dial on a higher number for rapid Carrier movement. *Leave right hand on Dial* and space with the left so you will remember to *move Dial back to 3 after spacing.)*

6. Carrier Position Indicator will be to the right of 2 ½. For many types of work, you could merely set your tab at the nearest pica (28 or 29). But, since some tabulations have critical spacing requirements, do this project exactly as described here, for practice.

7. To get the exact position for the tab,use unit Backspace Key and count seven backspaces until Indicator is exactly on 28. This tells you the second column should begin at 28 + 7. Make a note of this at the beginning of the second column on the original copy.

Title of Publication	Description	Machines Used	Form No.
	28+7	34+4	41+7
Mechanized Cash Posting	A–Bul.	Unit Record	H20–0034
Public Utility Customer Accounting with Series 50	A–GIM	Series 50	H20–0064
Punched Card Accounts Receivable Controls	A–Bul.	Unit Record	H20–0051
Telephone Revenue Accounting	A–GIM	Unit Record	H20–0014
IBM 650 for Public Utility	A–Brief	650 Unit Record	H20–6678

8. Reposition the Indicator 7 units to the right of 28. (Set Value Dial on 7 and space once. Be sure to return Value Dial to 3.)

9. Type longest item in second column, then space 30 units. (Remember to return Value Dial to 3.) By backspacing as described above, you learn this next column begins at 34 + 4 units. Make a note of this at the beginning of the third column on the original copy. Reposition the Indicator 4 units to the right of 34.

10. Repeat procedure for next column, which will be at 41 + 7.

Setting Tabs

1. Position Carrier at left margin.
2. Set tabs at each whole-pica number written on the original copy. Tabs will be set at 28, 34, and 41.

Rough Copy for Centered Headings

1. Type longest item of first column. Return Carrier, and type heading on next line.

Public Utility Customer Accounting with Series 50
Title of Publication 145

2. Holding Card Holder in position to right, space until vertical line is alined with last character on preceding line. Count units as you space to determine difference between the two lines. Note the number (145).
3. Type the longest item of next column. Return Carrier and type heading on next line.

A–Brief
Description 15

4. Since heading is longer than the longest line of column, slide Card Holder to right and *backspace* to determine difference between length of the two lines. Note the difference (15).
5. Repeat procedure, either spacing forward or backspacing as required, to determine difference between length of column heading and longest line of column.

Unit Record
Machines Used 11

H20–0034
Form No. 6

Final Copy for Centered Headings

1. To center heading over first column, position Carrier at left margin and space in half the number of units noted above (145 divided by 2 = 72 units to space over). You are ready to type.
2. To center heading over second column, position Carrier at beginning point for column (the 28 plus 7 marked on the Scale). Then backspace half the difference noted in step 4 above (15 divided by 2 = 7 units to backspace).
3. Follow same procedure for last two headings.

Final Copy for Columns

1. Type first line of first column at left margin.
2. Tab to 28, space 7 units (set Value Dial on 7, space once, reset Dial to 3) to position Carrier at beginning point of column as written on the copy. Then type.
3. Follow these same procedures for the rest of the project.

CHARACTER COUNT CHART

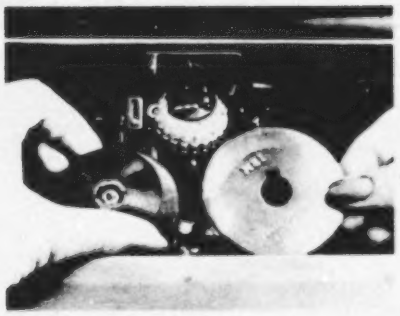
Number of Picas	Pica Equivalent in Inches	Number of Characters Per Pica By Escapement Lever Adjustment		
		Red	Yellow	Blue
1		2.5	2.9	3.3
2		5.0	5.8	6.6
3	½	7.5	8.7	9.9
4		10.0	11.6	13.2
5		12.5	14.5	16.5
6	1	15.0	17.4	19.8
7		17.5	20.3	23.1
8		20.0	23.2	26.4
9	1½	22.5	26.1	29.7
10		25.0	29.0	33.0
11		27.5	31.9	36.3
12	2	30.0	34.8	39.6
13		32.5	37.7	42.9
14		35.0	40.6	46.2
15	2½	37.5	43.5	49.5
16		40.0	46.4	52.8
17		42.5	49.3	56.1
18	3	45.0	52.2	59.4
19		47.5	55.1	62.7
20		50.0	58.0	66.0
21	3½	52.5	60.9	69.3
22		55.0	63.8	72.6
23		57.5	66.7	75.9
24	4	60.0	69.6	79.2
25		62.5	72.5	82.5
26		65.0	75.4	85.8
27	4½	67.5	78.3	89.1
28		70.0	81.2	92.4
29		72.5	84.1	95.7
30	5	75.0	87.0	99.0
31		77.5	89.9	102.3
32		80.0	92.8	105.6
33	5½	82.5	95.7	108.9
34		85.0	98.6	112.2
35		87.5	101.5	115.5
36	6	90.0	104.4	118.8
37		92.5	107.3	122.1
38		95.0	110.2	125.4
39	6½	97.5	113.1	128.7
40		100.0	116.0	132.0
41		102.5	118.9	135.3
42	7	105.0	121.8	138.6

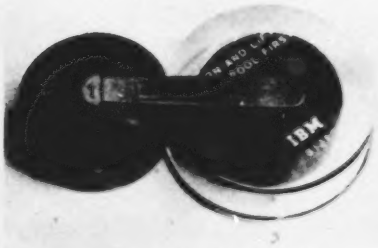
UNIT 8 – IBM SELECTRIC COMPOSER

P. Ribbon Mechanism

Objective: Be able to remove used ribbons and install new ones.

Information: The ribbon used on the Composer is equipped with a Threading Arm which can be saved and used again if there is a need to store a ribbon for future use. An operator should be able to remove used ribbons and partially used ribbons, install new ribbons, and reinstall partially used ribbons. Following are the accepted procedures as described in the IBM Instruction Manual.



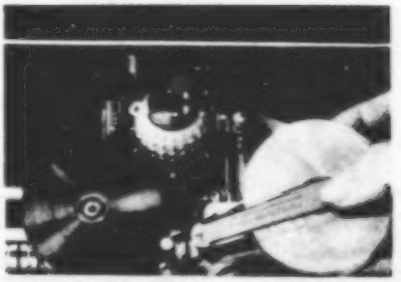


Removing Partially Used Ribbon

If you want to remove a partially used ribbon and store it for security or other reasons, you can. By saving the Threading Arm which comes with a new ribbon, you can use this Threading Arm to lock the two spools together for ease in storing.

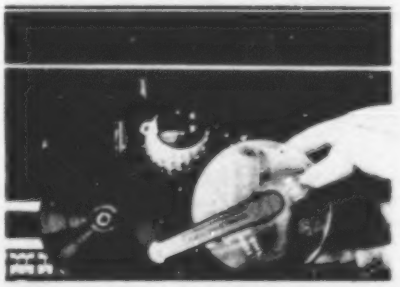
1. Turn motor off. Lift up the Cover/Paper Support and fold back the Carrier Cover. Use the diagram of ribbon threading, which you will find on the underside of the Carrier Cover, for reference.
2. Push the Ribbon Load Lever straight toward the Element to lift the Ribbon Guides and open Rollers on the right take-up side.
3. Remove both ribbon spools, turning each to release and lift out.
4. Lock two spools together for storage by breaking off end of Threading Arm and dropping that end into clear plastic spool, the other into the core of the ribbon spool.
5. Ribbon is ready for storage.

4. Still holding plastic spool, feed ribbon around Staff and through the left and right Ribbon Guides.

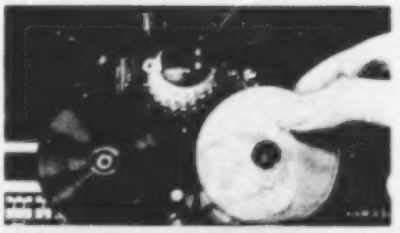


5. Position take-up spool over right Spindle so that arrow of Threading Arm is over the Roller.

6. Drop Threading Arm down over the Roller as you push take-up spool onto its Spindle.

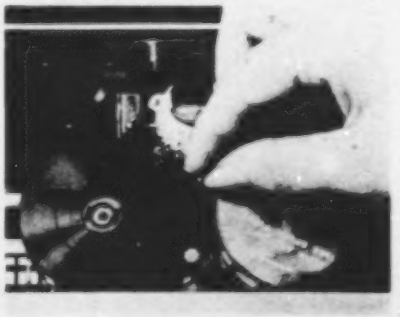


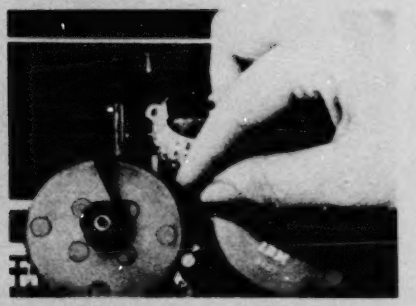
7. Ribbon take-up spool will click into place, and the Threading Arm will automatically pop up from the spool. Remove the Threading Arm.

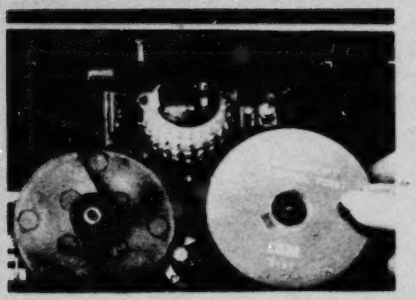


8. Pull Ribbon Load Lever toward you so Ribbon Guides will drop into place behind Element and Rollers will close.

9. Reposition Carrier Cover.

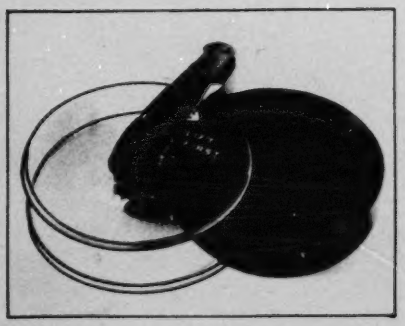






Removing Used Ribbon

1. Turn motor off. Lift up the Cover/Paper Support, and fold back the Carrier Cover. Use the diagram of ribbon threading, which you will find on the underside of the Carrier Cover, for reference.
2. Push the Ribbon Load Lever straight toward the Element to lift the Ribbon Guides and open Rollers on the right take-up side.
3. Grasp the plastic take-up spool by placing your right thumb on top and other fingers underneath.
4. Turn the spool in the direction of the arrow; then lift take-up spool and ribbon core out of the Composer and throw them away.

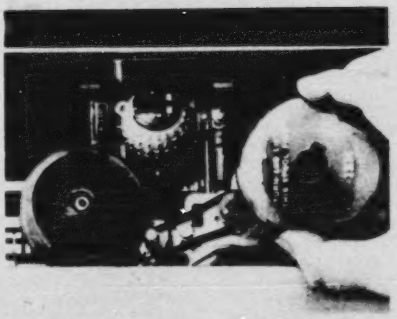


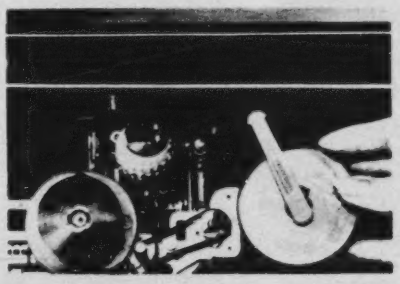
Installing New Ribbon

1. Remove plastic wrapping and cardboard insert from the new ribbon, but leave Threading Arm in position.
2. Grasp the clear plastic spool in your right hand.
3. Drop ribbon onto left Spindle.

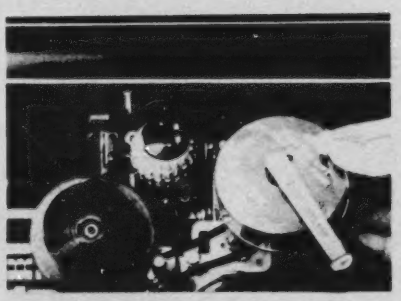
Reinstalling Partially Used Ribbon

1. Remove Threading Arm from ribbon spools.
2. Push Ribbon Load Lever toward Element.
3. Grasp the clear plastic spool in your right hand, and drop ribbon spool onto left Spindle.
4. Feed ribbon around Staff and through the left and right Ribbon Guides.
5. Still holding plastic spool in one hand, drop Threading Arm into hole on that spool, arrow end toward the Platen.

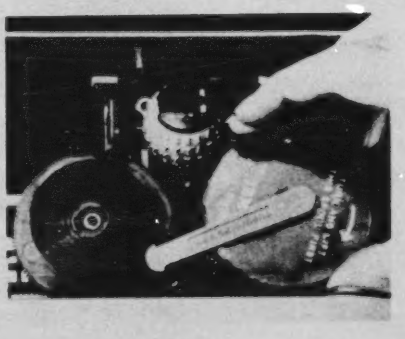




6. Turn the Threading Arm in the direction of the arrow to move the ribbon until it is positioned over the Rollers.



7. Drop plastic take-up spool onto right Spindle and Threading Arm over Roller.
8. Spool will click into place. Remove Threading Arm.
9. Pull Ribbon Load Lever toward you so Ribbon Guides will drop into place behind Element and Rollers will close.
10. Reposition Carrier Cover.



UNIT 8 – IBM SELECTRIC COMPOSER

Q. Care and Maintenance

Objective: Be able to properly clean and maintain the Composer.

Information: The best preventative maintenance for the Composer is to keep dust out of the machine by keeping the Cover down when the machine is not in use. The case and the keybuttons are best cleaned by using a sponge or soft cloth dampened with soap and water. *Do not use a liquid cleaner.* Lubrication is a service of the IBM Customer Service Department. *Never lubricate the Composer.* Follow procedures for cleaning individual parts.

Procedures:

1. **Card Holder.** – To remove, grasp small handle and lift straight up. To replace, drop lightly between Type Font and Platen. The cutout sections at bottom of card holder must fit securely over the metal racks on Carrier. Push Card Holder down until it clicks into place. To clean, use soap and water, and *dry thoroughly.*

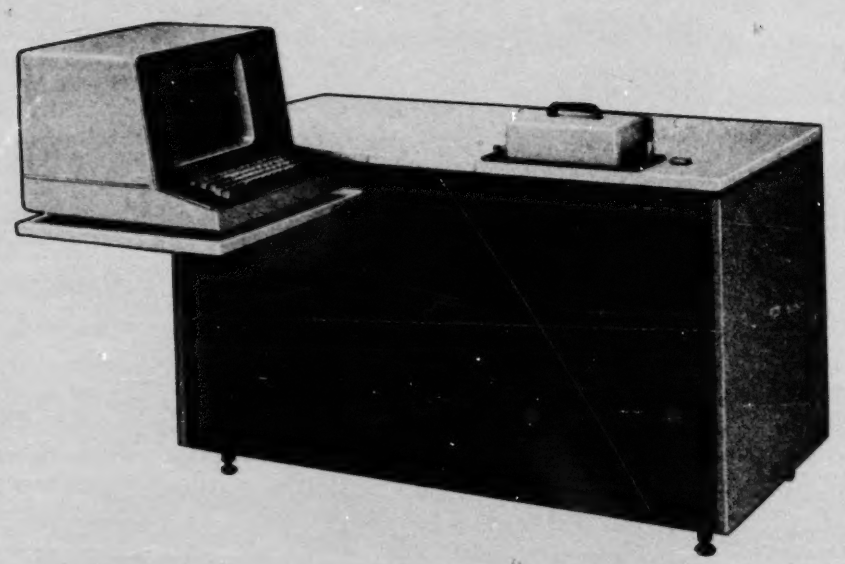
2. **Platen and Feed Rolls.** – Wipe with damp cloth. All parts to be cleaned must be completely removed from the Composer. To remove Platen, position Carrier in center, turn motor off. Pull Paper Release Lever forward. Lift up the Platen End Covers, placing thumbs on the left and right Platen-Release Levers. Depress Release Levers. The Platen will rise from its position and may be lifted from the Composer.

   Before Feed Rolls may be removed, the Paper Deflector must be lifted out. With the Platen out, grasp the toothed edge of the Paper Deflector, lifting up and forward. Remove carefully to avoid bending tines. To remove the Feed Rolls, hold between thumb and forefinger, lift out slot-end first, then remove from hole on opposite end.

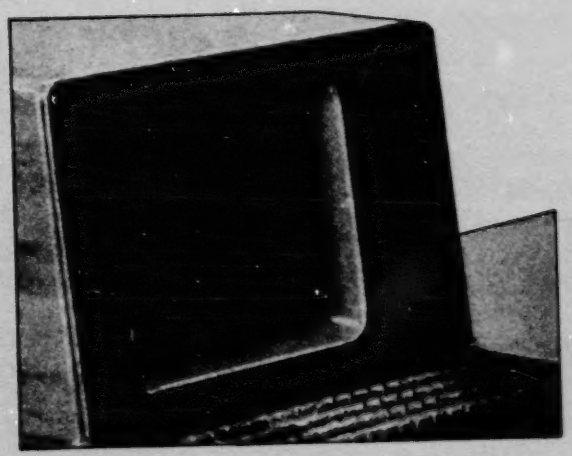
3. **Justification Tube.** – To clean right portion of Tube, return Carrier, pulling down Justification Lever. Clean exposed part of tube with a water-dampened cloth, spacing slowly so that inner tube is also being cleaned. To clean left portion of tube, move Carrier to right until bell rings, exposing the left portion of the Tube for cleaning. Pull down the Justification Lever and wipe the Tube clean, spacing to make it rotate.

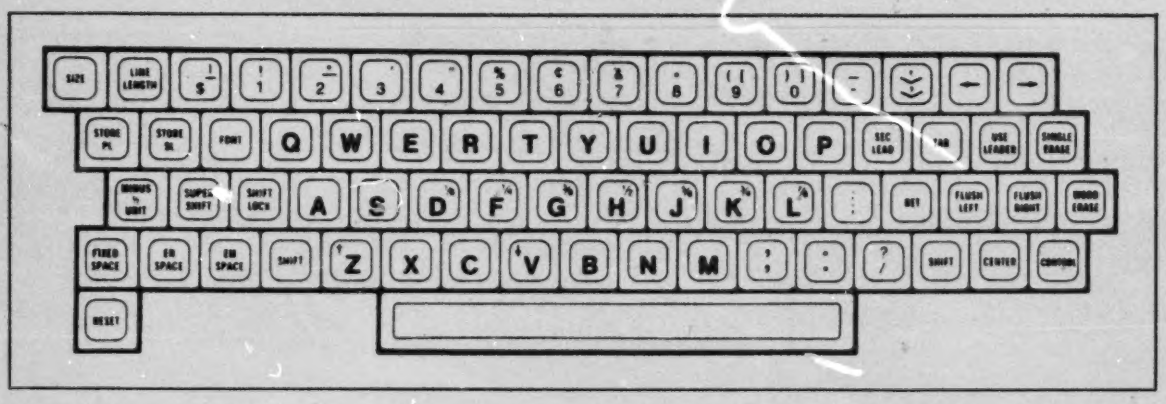
Student Activity:

Clean each part as described in the procedures.



COMP/SET





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UNIT 9 – COMP/SET

A. Functions

Objective: Be able to describe the component parts of the Comp/Set.

Information: The Comp/Set is a direct-entry phototypesetter. It uses a keyboard and a typesetter to produce composition. It has three major parts: (1) Keyboard, (2) Screen and (3) Typesetter. The On/Off Switch, located on the top right side of the typesetter, is activated by depressing once. Depress it again and the unit is turned off.

Keyboard. – The keyboard looks like a regular typewriter. The alpha-numeric keys are beige-colored; they are positioned exactly as on a regular typewriter. The orange-colored keys are function keys. Function keys tell the typesetter the various job requirements, e.g., type size to be used, line length, style of type, special copyfitting instructions, etc.

The Screen. – Character images are projected on this television-like screen. There are three different sections on this screen:

(1) The function field
(2) The last line of copy typed
(3) The line of copy being keyboarded.

Function Field. – This field (located at the top of the screen) constantly shows the main functions being used on a particular typesetting job. The operator can view the essentials of the job being set, such as line length, type size, leading, etc.

Top Line. – The Center Screen displays the line of type just set by the operator; it is being processed by the typesetter.

Bottom Line. – At the bottom of the screen is the line being keyboarded by the operator. This line may be edited, using such editing functions as the delete or overstrike. Upon depressing the Return key, this bottom line moves up to the center screen for processing by the setter.

Intensity Dial. – Located on the left rear side of the keyboard, the Screen Intensity Dial permits the operator to adjust the brightness of copy on the screen.

The Typesetter. – The information keyed by the operator at the keyboard is received by the Typesetter for photographic setting. The Comp/Set has a single lens mechanism capable of producing 33 different

sizes. This lens requires no manipulation or maintenance by the operator. The two major elements requiring attention by the operator are the type disc and the paper cassette.

Type Disc. – This disc is a small circular film piece with retaining handle at its center. The disc contains four different styles of type.

Paper Cassette. – The characters selected by the keyboard are projected through the disc and the lens. They are exposed on photographic paper enclosed in a lightproof container and moved into the lightproof cassette for developing. The **Footage Indicator**, at the front right side of the typesetter, indicates the total amount of photographic paper used. When a new container is loaded, the footage indicator is reset by pressing the inverted button with a pen or pencil.

The AM Processor. – This is a stabilization processor, used to develop the photographed material. It is operated in a manner similar to the Compugraphic CompuKwik (page 46).

Student Activity:

Study the information section. Be prepared to discuss the parts of the Comp/Set in class.

B. Preliminary Procedures

Objective: Be able to perform all procedures necessary before typesetting can be begun.

Tools & Materials: Comp/Set
1 Type Disc
1 Photographic paper container

Student Activity:

1. Inserting Type Disc
   a. Place empty disc box on convenient work space.
   b. Open cover panel on typesetter console.
   c. Firmly hold plastic grip (located behind Disc Retaining Handle), unscrew handle by turning counterclockwise.
   d. Remove disc by sliding to right and out.
   e. Place disc in empty box.
   f. Insert new disc, placing left edge of disc into small slots.
   g. Tighten Disc Retaining Handle while holding grip.
   h. Spin disc. (When properly inserted, the disc will turn easily. *Always check* both large slot and the smaller slot below to insure that the disc is positioned correctly.
   i. Close cover. The disc will begin spinning.
   j. Press Reset.

2. Inserting Paper Cassette
   a. Remove take-up cassette from machine. This is accomplished by gripping handle on top and *gently* pulling forward.
   b. Open side panel door by pulling up on the small lever located at top right corner. The panel will swing down.
   c. Follow instructions on panel door.

3. Turn Comp/Set on by depressing the On/Off switch.

4. Adjust screen intensity.

C. Input Procedures

Objective: Be able to produce a short passage on the Comp/Set by correctly following the input procedures.

Information: There are five basic instructions which must be placed in the Function Field before the operator can keyboard a typesetting job. (Without these instructions, the keyboard will be locked, preventing keyboarding.) The five basic functions are:

1. Size
2. Font
3. Line Length
4. Primary Leading
5. Secondary Leading

The five functions may be entered in any sequence. Once entered (with machine on), it is not necessary to re-enter for each job. However it is necessary that a value for each function be in the field, even if some function is not to be used in a specific job.

1. **Size.** – There are 33 sizes of type for the Comp/Set. All are available in the machine at one time.

   Text Sizes (Points): 5½, 6, 7, 8, 8½, 9, 10, 11, 12, 13

   Display Sizes (Points): 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36.

   Since the Comp/Set receives instructions from function (or command) keys, some functions require the typesetter to store and "remember" information.

   Size Command: A Size Command is always followed by *two digits* that indicate the type size to be used. A size command can be entered anywhere in the copy. It will cause the typesetter to change immediately to the size called for. When a size command is initially entered, it will appear in the first line of the Function Field on the screen.

   The size showing in the Function Field will always reflect the size *being set*. For example:

   Size 10 = Size key + 10

Size 6 = Size key + 06
Size 7½ = Size key + 75.

(Note that, when using half sizes, as in the 7½-point size, the *half* is represented by the digit 5 following the whole-point digit.)

2. Font. – The Type Disc contains four different fonts of type. These are complete alphabets, A through Z in upper and lower cases, together with matching numbers, punctuation, and special symbols. The four different fonts are arranged in rows on the disc. The typesetter must be instructed to use one of the four available type fonts. Usually a disc will contain three members of the same type family plus a matching or contrasting type style, as in this example:

Font 1 is generally light or medium face characters.

Font No. 7-29 Chelmsford

abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ&
1234567890$¢ 1234567890$ ⅛¼⅜½⅝¾⅞
().,-:;!?/''—_*%#°"†‡|.®□[]

Font 2 normally contains italic characters of the same type style.

Font No. 7-30 Chelmsford Italic

abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ&
1234567890$¢ 1234567890$ ⅛¼⅜½⅝¾⅞
().,-:;!?/''—_%#+"§×–®□[]*

Bold-face characters of the same type style are normally found in Font 3.

Font No. 7-51 Chelmsford Demi-Bold

abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ&
1234567890$¢ 1234567890$ ⅛¼⅜½⅝¾⅞
().,-:;!?/''—_*%#°"†=–_™□[]

Font 4 will vary, containing either a matching or contrasting type style.

Font No. 7-53 Univers Bold

abcdefghijklmnopqrstuvwxyz
ABCDEFGHIJKLMNOPQRSTUVWXYZ&
1234567890$¢ 1234567890$ ⅛¼⅜½⅝¾⅞
().,-:;!?/''—@*%#+'"†‡-■□[]

To keyboard a font, type the Font key and 1 digit (1,2,3, or 4), representing the *row of type* desired.

Font 1 = Font key + number 1
Font 2 = Font key + number 2
Font 3 = Font key + number 3
Font 4 = Font key + number 4

3. **Line Length.** – The distance between the left and right margins is referred to as the Line Length. The Comp/Set must be told how wide the line is to be. The Line-Length Command is given to the machine by striking the Line Length (LL) key followed by *four* digits. The first two digits represent the number of picas, and the last two digits represent the number of points. The Line-Length Command is entered once, at the beginning of the typesetting operation. It can be changed at any time during the job by entering a new line length at the *beginning* of the line where the change is to take place.

Examples:

LL of 12 picas = Line-Length key + 1200
LL of 24½ picas = Line-Length key + 2406*
LL of 6 picas = Line-Length key + 0600
LL of 6¼ picas = Line-Length key + 0603*

For all point sizes, from 5½ to 36 points, the maximum line length is 45 picas.

4. **Primary Leading.** – Leading on the Comp/Set is measured from baseline to baseline. Different amounts of leading (spacing) are achieved by instructing the typesetter. To the typesetter, primary leading is similar to the ordinary vertical-line spacing on a typewriter. After each line is printed, the typesetter automatically advances the photographic paper by the amount of leading stored in its memory, whenever the **Return Key** is depressed.

Store-Primary-Leading Command: The Store-Primary-Lead key (STORE PL) must be followed by *three* digits. The first two stand for full points, and the third digit must be either a 5, representing ½ point, or a 0 representing no ½ point. If any other number is entered as the third digit, it will be read as ½ point.

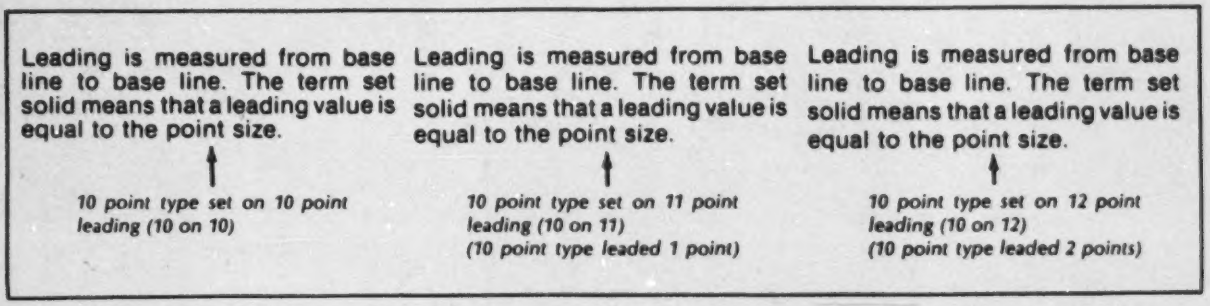
Examples:

Primary lead of 9 points = Store PL key + 090
Primary lead of 12 points = Store PL key + 120
Primary lead of 13½ points = Store PL key + 135

The Primary-Lead Command should be entered at the beginning of a job. It may be changed at any time. The stored amount of advance will occur at the end of the line in which it is entered. The stored amount of primary leading equals the point size of the

* See page 22, Printer's Point System. Since 12 points equal 1 pica, half a pica equals 6 points, and a quarter of a pica equals 3 points.

type when the copy is being set solid. When extra white space is desired between the lines, the leading is increased to the amount desired (12-point type with 14 points of leading will produce 12-point type with 2 points of extra leading – referred to as leaded 2 points). Examine these samples of copy set with different leadings:


Leading is measured from base line to base line. The term set solid means that a leading value is equal to the point size.
10 point type set on 10 point leading (10 on 10)
Leading is measured from base line to base line. The term set solid means that a leading value is equal to the point size.
10 point type set on 11 point leading (10 on 11)
(10 point type leaded 1 point)
Leading is measured from base line to base line. The term set solid means that a leading value is equal to the point size.
10 point type set on 12 point leading (10 on 12)
(10 point type leaded 2 points)

When a point size is entered which is larger than the primary-leading value recorded in the function field, a warning beep will sound to alert the operator to a potential problem. The keyboard will *not* lock, and the operator may continue setting as before. The warning beep is a precaution to prevent a possible overlapping line of copy.

5. **Secondary Leading.** – An additional leading function is available for use between paragraphs, after headings, or any other time a value is needed which is different from the stored primary leading value. This is referred to as Secondary Leading. It may be changed as often as needed on a particular job.

   Store-Secondary-Leading Command (STORE SL): This command is followed by *three digits.* The first two digits stand for full points, and the third digit must be either a 5, representing ½ point, or a 0, representing no half-point.

   Use-Secondary-Leading Command: The stored primary-leading value normally occurs after each line. When the *secondary-leading* value is desired, the operator keyboards the Use-Secondary-Lead (SEC LEAD) key at the end of the line. It must be keyboarded each time it is needed. The Comp/Set will use the stored secondary value *in place of* the primary leading.

IMPORTANT: *A Return must always be entered after the five commands have been entered. The commands must be locked in again after any "reset" condition,* which is indicated by x's in the Function Field on the screen. Failure to key a Return after these initial commands could result in the keyboard's being locked.

Reset. – When the keyboard locks for any reason (running out of paper, impossible command keyboarded, etc.) it is necessary to depress the Reset key and reenter all functions.

Student Activity:

Using the type disc installed in the preliminary procedures, set the following three paragraphs, using these specifications:

Type size: 12 point
Line length: 22½ picas
Primary leading: 13 points
Secondary leading (to be used between paragraphs): 16 points

Thomas Paine, born in Thetford, England in 1737, met Benjamin Franklin in London in 1774. Franklin gave Paine letters of introduction to leading men in America and, in December of 1774, he came to the Colonies, arriving in Philadelphia. Here he became the editor of the Pennsylvania Magazine. Hostilities having commenced between England and the Colonies, Paine wrote his well-known pamphlet, "Common Sense" in January of 1776.

The object of this pamphlet, written with much vigor, was to recommend the separation between the Colonies and Great Britain.

After war was declared, Paine gave up his position on the magazine and joined the staff of General Green. In 1777, while with the army, he wrote a series of political appeals under the title of "The Crisis," the first number of which started with the words, "These are the times that try men's souls."

(Adapted from the Encyclopedia Americana)

UNIT 9 – COMP/SET

D. Operating Modes

Objective: Be able to typeset simple material in both manual and automatic modes.

Information: On the Comp/Set, there are two general ways or modes used to justify copy, **Manual** and **Automatic.**

Manual Mode. – In the manual mode, *the operator decides* where to end all lines. The keyboard becomes a "counting unit"; it tells the operator when there is enough copy typed to justify the line. When a line enters the justification range (the point at which a line could be ended), a blinking rectangle appears on the copy display, and a beep is sounded.

The Line-Length-Remainder (LLR) indicator, located at the beginning of the Function Field Display, tells the operator exactly how many units are left in the line. It subtracts the unit value of each character and space keyed. In order to set tight lines, the operator would continue setting copy until the remaining space is too small to allow more words.

Sometimes more copy is keyed than will fit in the line. This *overset* is indicated on the screen by a second blinker. The LLR will indicate the overset by substituting dashes in place of digits in the Function Field Display. Until the overset is corrected, the keyboard will be locked.

To correct an overset condition, the last word typed is deleted with the Word-Erase key. It unlocks the keyboard and causes the LLR to recount. The last word may then be hyphenated if desired.

The Manual mode is activated by depressing the Control key located on the lower right side of the keyboard, followed by the character "m" key. An "M" will appear in the first line of the Function Field Display.

Student Activity:

Using the Manual mode, 12-point type, line length of 14 picas, and solid leading, set the following copy. Hyphenate when overset condition is reached:

> William Caslon, born in 1692 in Worcestershire, was destined to change the appearance of English printing through the design and casting of a new type-face. Not only is Caslon type still used, but it is consciously or unconsciously followed by many contemporary typographers.

Automatic Mode. – In the Automatic mode, *the machine decides* where to end the line on justified copy. The operator sets line after line without regard to end-of-line decisions. If the Typesetter is unable to set a line according to its program, a warning signal will sound. The machine will switch to Manual mode, and the operator will decide how to end the line. In most instances, the operator will choose to correct the overset line by deleting or hyphenating the last word. After the end-of-line decision has been made and the operator has pressed the Return key, the Typesetter will immediately return to Automatic mode.

Depressing the Control key followed by the character "a" instructs the Comp/Set to operate in Automatic Mode. An "A" will appear in the first line of the Function Field Display. When operating in this mode, the operator must tell the Typesetter when to end a paragraph. This is done by keyboarding the Flush Left key, followed by a Return. The Comp/Set program, which is initiated by turning the machine on or by pressing Reset, is *always in Automatic mode unless changed by the operator.*

Student Activity:

Using the Automatic mode, line length of 16 picas, and 10/11 type, set the following copy:

> Communication is the act of transferring information from creature to creature, person to person, and point to point. Communicating is an important activity during every waking hour in every day of our lives. Often we do not realize that, as individuals, we are communicating by one process or another at all times. Many aspects of communication are taken for granted because they have become natural activities in our daily habits.
>
> One of the simplest forms of communication is the facial expression or gesture. A smile communicates a feeling of happiness, while a frown communicates a feeling of sadness or discontent.
>
> (From "Graphic Communications"
> by R. J. Broekhuizen)

E. Flush Left, Flush Right, and Center

Objective: Be able to set simple copy centered, flush-left, and flush-right.

Information: When in the Automatic mode, the Typesetter will always try to justify copy unless it receives a Flush-Left, Flush-Right, or Center command. These function keys will be found in the lower right section of the keyboard. They must be depressed for each line of type.

Flush-Left Command (FL). – The Flush-Left command *followed by a Return* tells the Typesetter to end the line and set the copy flush against the left margin.

Flush-Right Command (FR). – The Flush-Right command followed by a Return tells the Typesetter to end the line and set the copy flush against the right margin.

Center Command (C). – The Center command followed by a Return will center the copy between the left and right margins.

With this information the operator is able to perform all of the above special functions.

Student Activity:

Using Manual mode, a 12-point type, leaded 2 points, set the following copy in three formats: flush-left, flush-right, and centered. Choose your own line length.

Miners
Carpenters
Printers
Doctors
Blacksmiths
Typists
Auto mechanics
Lawyers
Nurses
Writers

F. End of Line

Objective: Be able to describe the End-of-Line function.

Information: An End-of-Line (EOL), function tells the Typesetter to set the line of copy it has just read and perform all the appropriate functions. When a line containing copy and various commands is entered, the Typesetter will not act on the information until it reads or makes its own end-of-line command. There are several end-of-line commands, any of which will cause the Typesetter to return the carriage and start a new line.

When justified copy is set in Manual mode, the end-of-line decisions are made by the operator. A Return command tells the Typesetter to end that line and justify copy.

When justifying in Automatic mode, the Typesetter makes most of the end-of-line decisions itself. At the end of a paragraph, Flush-Left and Return commands are entered. When a Flush-Left, Flush-Right, or Center command is entered along with a Return in Automatic mode, the Typesetter will treat it as an end-of-line. *A Return by itself in Automatic mode becomes simply a space.*

G. End of Job/Accumulated Leading

Objective: Be able to describe End-of-Job and Accumulated-Leading Procedures.

Information: End of Job. – After keyboarding a job, the operator must use the End-of-Job command to advance the paper. The code for this function is Control followed by the character "e". The paper will be advanced approximately 7 inches and may be cut and processed.

Accumulated Leading. – During keyboarding, ACL (Accumulated Leading) on the top line of the Function Field Display advances in number with each line set. This tells how much paper has been used for the particular job. An End-of-Job command will automatically reset this value to zero. This value can also be reset to zero during a job or between small jobs by keyboarding the Control and "k".

The Function Field Display might show a typical Accumulated Leading as follows:

ACL 04 14

The first two digits equal inches (4 inches in this case): the last two digits represent points.

H. Character and Word Erase and Cancel Line

Objective: Be able to perform corrections of characters, words, and lines.

Information: **Character and Word Erase.** – The operator can edit a job or correct errors while keyboarding simply by using the keys at the top right of the keyboard marked Single Erase and Word Erase.

The screen shows a line as it is being keyboarded. At any point in the line, an operator may move the Cursor back (← key) and overstrike or delete. The Single Erase will delete the last individual character; the Word Erase will remove the entire last word and all attached functions, back to and including the last word space. Either key can be depressed repeatedly. This is a very convenient way to correct a misspelled word.

Cancel Line. – There is also a Cancel Line function which will erase an entire typed line on the screen. This is achieved by keyboarding Control and "cl." A total of three keys must be pressed. This prevents cancelling a line by mistake.

Student Activity:

Choosing your own type size, line length, and leading, set each of the following exercises, making the corrections required:

1. Set the following line, correcting the misspelled words by using the Single Erase as you go:

   Now si the tine fir alk good mon to come yo tge aid

   Correct this to read:

   Now is the time for all good men to come to the aid

2. Set and correct the misspelled line by using the Word Erase as you go.

3. Set and correct the misspelled line by using the Cancel Line and resetting it completely.

UNIT 9 – COMP/SET

I. Case and Disc Formats

Objective: Be able to use the disc formats and the case commands.
Be able to set a simple job involving the use of super case.

Information: **Lower Case (LC) Unshift.** – The Lower Case command tells the phototypesetter that all following characters are to be set in the lower case.

Upper Case (UC) Shift. – The Upper Case Command tells the phototypesetter that all the characters that follow are to be in upper case (caps).

Super Case (SC) Super Shift. – On the Comp/Set type discs, there are 112 characters in each of the four fonts. The standard alpha-numeric keyboard consists of 43 unshift characters and 43 shift characters (total 86). To use the extra 26 characters available on the disk, a super-shift position is used.

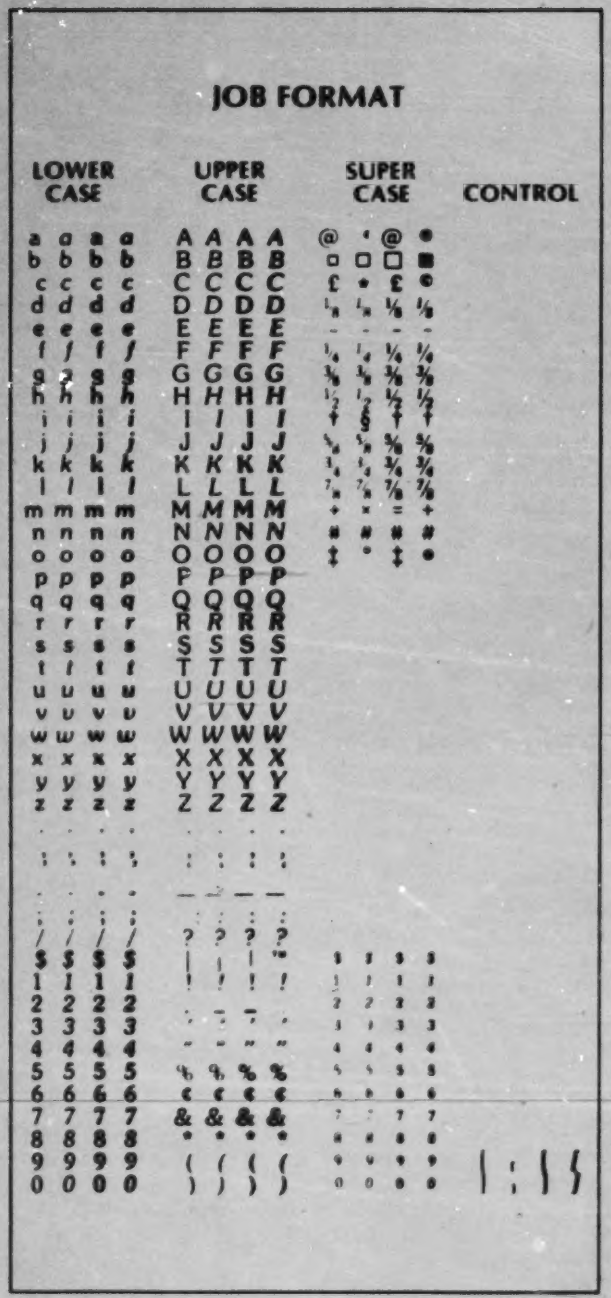
Super-Shift characters are usually symbols or superior numbers. The Super-Shift command tells the Typesetter that all characters that follow are in the Super Case. When the Super Shift is depressed, "ss" will appear in the Function Display on the screen. All characters following the appearance of the "ss" will be in Super Shift. The symbol remains as long as the Comp/Set is in Super Shift. Pressing the Super-Shift key again will clear the "ss" from the Function Field Display.

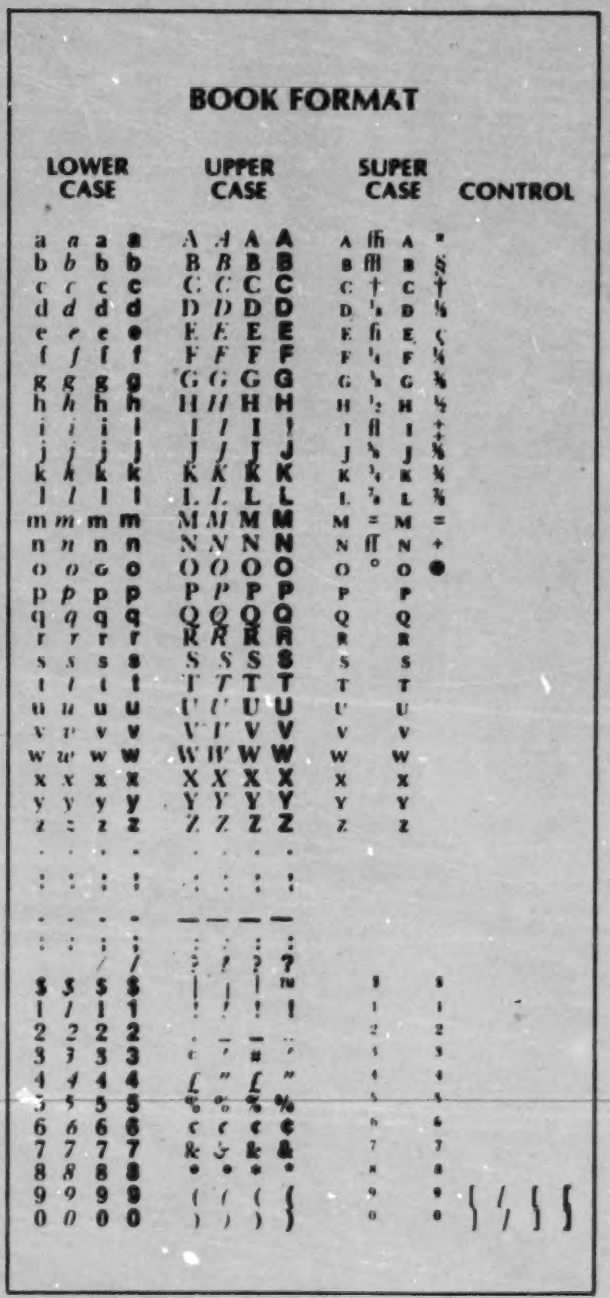
Format Charts. – Each type disc is designed in a format and is labeled. These charts must be used as reference in order to select the proper Super Case characters. Two characters (marked in white on the keys) are obtained by the use of the white Control key. These are the open bracket and the closed bracket.

Open Bracket = Control + 9

Closed Bracket = Control + 0 (zero)

Two sample format charts, Job Format and Book Format, are shown on the next page.


JOB FORMAT
LOWER CASE
UPPER CASE
SUPER CASE
CONTROL


BOOK FORMAT
LOWER CASE
UPPER CASE
SUPER CASE
CONTROL

Student Activity:

Keyboard the following exercise using a Job Format disc. Be sure to refer to the proper Format Chart in performing the exercise. (Omit border.)

J. Word Spacing and Letterspacing

Objective: Be able to perform word- and letter-spacing operations.

Information: **Word Space.** – Unlike typewritten copy, typeset spaces between words are not always the same size – the width of the word spaces varies. When justifying, this flexible width space is the area in which the line-length shortage is evenly divided to permit justification. (When a line of type is *not* justified, the word space is always double the minimum word space value entered into the machine.)

Compare the size of the word spaces in line 1 to those in line 3.

To keep AM 748 exposure changes to a minimum, it is recommended that VariTyper 7220 Paper be ordered regularly on a periodical basis, i.e. 2-3 months. This procedure will guarantee a fresh stock of paper at all times with all rolls having a similar expiration date.

On the second line of the Function Field Display, the letters JSP followed by two numbers sets the range of word spacing that the operator has specified. A reading of "JSP 3 TO 18," for example, means that the Typesetter is allowed to use a minimum of 3 units up to a maximum of 18 units for every regular word space in order for the line to be justified. The minimum and maximum space values entered play a large part in the "tightness" of the lines. These values can be easily changed to make the printed material tighter or more open-looking.

Minimum Space Value (MIN) = Control + "n" + 1 digit (1–9)

Maximum Space Value (MAX) = Control + "x" + 2 digits (01–99)

A range of 3 to 9 units provides the tight lines preferred for magazine columns or ads.

Notes: Maximum word space must be larger than the minimum, but not larger than the line length entered.

MIN/MAX values can be changed throughout a job, but not in the middle of a typesetting line. Clear the line being typed; make value changes; and begin line again.

Letterspacing (LSP). – Letterspacing automatically occurs without any special commands from the keyboard *when the maximum JSP has been reached.* First a single unit will be inserted between all letters, then two units, etc., up to the maximum LSP value entered on the keyboard. Lines that cannot be justified by the Typesetter with maximum word- and letterspacing will be set flush-left.

The maximum letterspacing value can be changed by the operator by keyboarding "Store Interletterspace value" (Control plus "s" plus 1 digit, 0–9). A zero will prevent all letterspacing. A letterspacing value of 3 is the standard for most work.

Student Activity:

Set the paragraph immediately above to a width of 12 picas in 12-point type size, with solid leading. Set MINimum space value at 4 and MAXimum space value at 14. Set letterspacing at 2.

K. Character Widths and Fixed Spaces

Objective: Be able to typeset material using Fixed Space commands.

Information: **Character Widths.** – An ordinary typewriter allots the same amount of space to a letter regardless of its width (compare "m" and "i"). In typesetting, characters take up varing amounts of space. The Typesetter spacing is counted in *units*, not characters. The fonts vary in the number of units for the different characters.

The upper case "M" in a particular type style may take up 18 units, while the lower case "i" may take up 5 units. In that particular font, the "M" will occupy 18 units regardless of the size of type. (Therefore the size of the unit must vary, being smaller for small type and larger for large type.)

Fixed Spaces. – When the typesetter justifies a line, it adds extra space between all words. There are many times in printing, however, when we do not want a space enlarged. For example, we want the spaces uniform after introductory headings, or numbers, or letters, or for indented material. We use fixed spaces for this: they will not be expanded regardless of what happens to the other spaces in the line.

Em Space (EM). – The EM space is 18 units wide. This is the widest fixed space. It is most used for indents, such as the beginning of a paragraph.

En Space (EN). – The EN space is 9 units wide. It is often used in combination with the EM space for varied indents. It is also used for creating larger-than-programed word spaces, such as between words of a heading set in all caps.

Always use a fixed space to indent a paragraph, to produce uniform paragraph beginnings.

Fixed White Space Command. – A programable fixed-space key is located on the left side of the keyboard. A chosen value of fixed space (up to 999 units) may be stored in the machine by depressing the Control followed by the Fixed Space key and 3 digits (001 to 999). The value of the stored space is displayed on the second line of the Function Field, following the letters FS. Once stored, the fixed space will be entered into a job *each time the Fixed Space key is depressed.* This function is most frequently used for indents or runarounds. The value stored may be changed in the course of a job by simply following the above procedure and entering the new value.

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Specified Space Value. – The command for this function is used for a one-time-only fixed space. It must be reentered each time the value is needed. To enter such a space, keyboard Control plus Z plus 1 digit (1–9). These digits represent units. This command does not affect the programable Fixed Space key.

Useful Hint: A simple method of obtaining the unit value of any character without referral to the unit count chart is to make use of the Use Leader function (discussed in the next lesson). Follow this procedure: Control / Use Leader / enter the character /. The *count* will appear in the Function Field on the viewing screen immediately following the Leader configuration. (Be sure to restore the original leader character.)

Student Activity:

Using the Fixed Space Command, keyboard these exercises:

Fresh-fruit Compote

Apples and pears take on a pretty glaze; orange slices add refreshing flavor—

4 medium baking apples
4 ripe pears
2 unpeeled medium oranges, sliced
seedless raisins
1 cup brown sugar
1 cup water
3 tablespoons butter or margarine

Core apples; pare a strip off top of each. If necessary, cut thin slice off bottom of pears so they'll stand upright. Arrange apples, pears, and orange slices in electric skillet; fill apple centers with raisins. Combine brown sugar and water; pour over fruits. Add butter. Bring to boiling; lower heat to simmering (about 220°) and cook covered 40 to 50 minutes or until done. Baste with the syrup now and then. Serve.

Chicken Livers Stroganoff

Supper's in a skillet! Just plan rolls and salad that's all you'll need—

2 cups thinly sliced onion
¼ cup butter or margarine
½ pound chicken livers, halved
1 tablespoon paprika
½ teaspoon salt
dash pepper
1 cup dairy sour cream
hot cooked rice

Cook onion in butter till tender but not brown. Add chicken livers. Season with paprika, salt, and pepper. Slowly brown livers. Cover and cook over low heat 10 minutes or until livers are tender.
Add sour cream; heat through. Serve over hot cooked rice. Garnish with parsley, if desired. Makes 4 servings.

Computer Development

Modern digital computers are the result of a complex series of events begining in the 1600's. Most of the development of modern computers has occurred since about 1945. The computer has now become an accepted fact, and it is another tool in the modern technological world. Ever since man discovered numbers there have been devices in existence to assist him in computations. The abacus has been in use for so many years that it is impossible to find when this device of movable beads was first used. The first calculating machine was developed by Blaise Pascal in 1642. It contained a wheel for each digit of a number, and each wheel was marked with the numbers from 0 to 9. Devices that very closely resemble this are still in operation. In 1671 Gottfried Wilhelm von Leibnitz conceived the fundamental principle of the first multiplying calculator machine, multiplying by rapidly repeated addition. The machine was demonstrated for the first time in 1694. Figure wheels were used with a sliding device that enabled the user to perform repeated additions rapidly. Other developments inlude the introduction of punched cards in 1725. Using cards or tape with holes has been enlarged on until it is one of the basic concepts of all computer systems. Charles Babbage began the development of a large computes in the year 1812; this machine, called a difference engine, was designed for one particular application.

L. Leaders

Objective: Be able to set leaders and rules on the Comp/Set.

Information: Leaders and ruled lines may be set automatically on the Comp/Set. The operator is able to fill a line with leader dots or rules with one keystroke, by using the key Use Leader (UL).

Example: (using a Leader Dot)

If you keyboard - CHAPTER FOUR (UL, R)
The phototypesetter will print ..... CHAPTER FOUR .....

If you keyboard - (UL) 143 (R)
The phototypesetter will print 143

If you keyboard - CHAPTER FOUR (UL) 143 (R)
The phototypesetter will print ..... CHAPTER FOUR 143

The leader characters automatically aline vertically with each other.

Store Leader Command. – The regular leader characters (dot, medium rule, bold rule, and dash) are stored on command and displayed on the Function Field (LDR ÷).

If no leader is stored, the machine will automatically use the leader that is in the upper-case position of the figure 2 key. Thus there are four different standard leaders, depending upon which font you happen to be using.

Font 1 will give you the dot leader. .....

Font 2 will give you the light rule. _____

Font 3 will give you the bold rule. _____

Font 4 will give you the dash leader. .....

Thus, if you are using font 2 and want the *dot* leader, you will have to store it.

All standard leader characters are 9 units wide.

In addition, *any* character on the disk can be stored and used as a leader, by following these directions:

To store a leader, press Control, then the Use Leader key followed by the desired character. For example, if the leader character wanted is an asterisk, keyboard Control + Use Leader + *. The asterisk will appear on the Function Field Display after LDR. Thereafter, whenever the Use Leader key is pressed, the line will be filled with asterisks.

To store a Super Shift character, keyboard Super Shift, Control, Use Leader, Character, and Super Shift again.

When using one of the *standard* leaders (the dot, rules, or dash), any of the *other* standard leaders may be selected by changing fonts before the Use Leader command.

When you keyboard Font 1, Copy, Use Leader, Copy, Return, the machine prints: Copy.....Copy

Depressing:

Font 2, Use Leader, Return = _____

Font 3, Use Leader, Return = _____

Font 4, Use Leader, Return = ...

Student Activity:

Perform the following exercises, using standard dot leaders and Font 1.

Tea ..... .25
Coffee ..... .30
Milk ..... .30
Hot Chocolate ..... .40
Seven-Up ..... .40
Coke ..... .40

Set the following, using the same font but the heavy dash leader.

Name .....

Address .....

City ..... Zone..... Phone.....

Note: The Use Leader key may be used only one time in a line. Put in the rules for "Zone" and "Phone" manually by pressing the Shift Lock and the Number 2 as many times as needed. This could also be done by using tabs, which will be explained in the unit on Tabular Setting.

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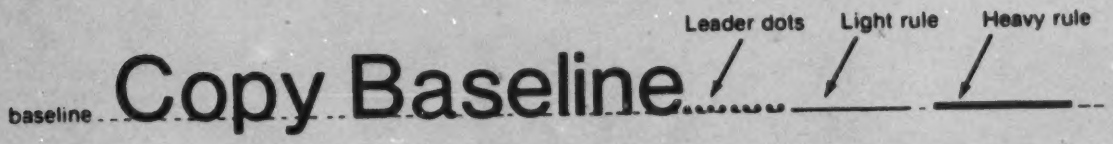
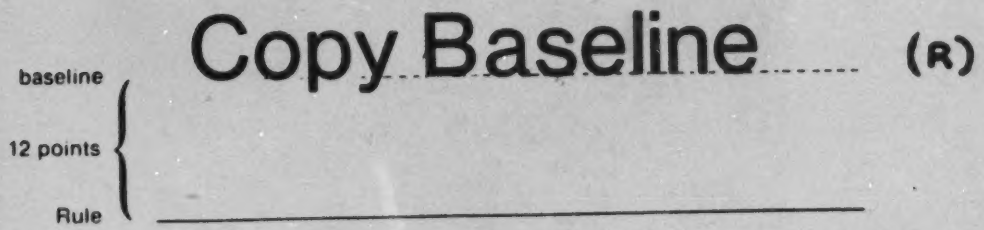
M. Ruled Lines

Objective: Be able to set ruled lines at the proper distance from the baseline.

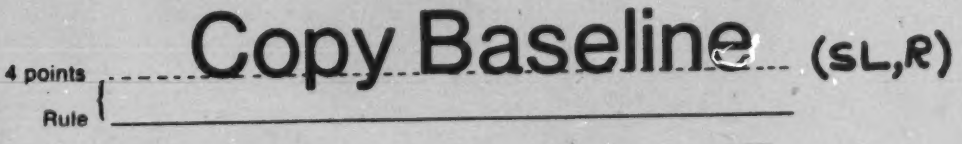
Information: Note that all leader dot and rule segment positions are *on the base line of the type*, as shown here.



It may be necessary to position a ruled line slightly below the last line of copy. Assuming the above is 12-point type set solid, a smaller leading value than 12 points would be required to set a ruled line just below the words "Copy Baseline." If 12 points of leading were used, the ruled line would be set too far below the copy, as here.



By using a Secondary Leading (SL) value (see page 127) set at approximately 1/3 the value of the point size, a rule will be produced slightly below the descenders of the copy line. This 1/3 value is a general *rule of thumb;* it should be changed as necessary, depending on the design of the type. In the case of the 12-point sample above, the secondary value would be 1/3 of 12, or 4 points, as shown in the next example.



Since approximately 20% of the point size is required for the descenders, you would likely use a smaller leading for an all-caps underlining. For example, the rule in the following sample has been set only 2½ points below the baseline for this 12-point type set in caps:

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2½ points Rule

COPY BASELINE (SL,R)

Student Activity:

Set the following copy, centered in a 24-pica line. Use a 24-point Font 1 type, and underscore with a bold rule:

Gettysburg Address

Set the following copy in caps, centered in a 22-pica line. Use a 14-point, Font 1 type with light underscore:

DECLARATION OF INDEPENDENCE

UNIT 9 – COMP/SET

N. Fixed Space Leaders and Leader Width Command

Objective: Be able to use fixed space as a leader.
Be aware of the Leader Width command.

Information: Any fixed space (usually EN or EM) may be used in place of a leader. It is used most often to achieve a flush-left, flush-right effect.

President Jimmy Carter

Vice-President Walter Mondale

To set copy flush-left and flush-right on the same line, use an EN space as the leader character. In this case, the Use Leader command would be inserted between the copy to be set flush-left and the copy to be set flush-right.

Example, to store an EN space as leader character:

Depress Control, Use Leader, EN Space

Now if you keyboard – Flush Left, UL, Flush Right, the Typesetter will print the copy as above.

A fixed space, such as the EN or EM space, is the same in any font or shift position.

When the EN has been stored as a leader, the character ◨ will appear in the Function Field Display. The character for EM looks like this ■.

Leader Width Command. – The standard program automatically gives the leader character as the shift of the Number 2 (leader dot, medium rule, bold rule, and dash leaders in both Job and Book formats). It sets the leader width for these characters at 9 units. If the operator wishes to spread out the leader dots for a menu or ad work, this can be done by changing the leader width. Keyboard Control + "w" + two digits representing the desired width.

For example:

Control + "w" + 18
Control + "w" + 06

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The Reset key will always restore the standard leader characters and width.

When storing a leader character to replace the standard leaders, you may wish to change their normal spacing. For example, an asterisk has a normal spacing of 7 units. You may wish a spacing of 24 units. Simply keyboard:

Control + Use Leader + * + "w" + 24

Whether the character or only the width has been changed, using the Reset key will always restore the standard leader characters and width.

Student Activity:

Set the following in flush left and right. Choose an appropriate size of Helvetica type and a 12-pica line.

First Edition – 1934
Second Edition – September 1938
Third Edition – October 1964
Fourth Edition – November 1966
Fifth Edition – October 1967
Sixth Edition – April 1969
Seventh Edition – June 1963
Eighth Edition – November 1964
Ninth Edition – February 1966
Tenth Edition – May 1970
Tenth Edition, Rev. – January 1973
Eleventh Edition – December 1974
Twelfth Edition – May 1978

O. Kerning

Objective: Be able to perform a kerning operation on the Comp/Set.

Information: Kerning means reducing the spacing between two characters, so that part of their letter shapes overhang. It is referred to by the Comp/Set manufacturers as mortising. The term "mortise" is derived from the engraving trade: metal was cut from an engraved cut to allow the cut to fit around either type matter or another cut. We will use the term "kerning," since that is the term used in the Typography trade.

Kerning Command. – This command (MINUS ½ UNIT key) offers quick and easy control over the amount of white space between any two characters. Kerning Command acts like a ½-unit back-space key. Each time the Kerning Command is depressed, it will remove ½ unit of white space before the next character is set. A kerning symbol (←) will be inserted in the copy when needed. For example, the word "VASE" might look like this:

If a Minus ½ Unit Kern is entered after the "V", the "A" will be set one-half unit closer, as shown here:

In this case we might use *two* Minus ½ Unit kern commands after the "V". Now the "A" is set one whole unit closer:

This function gives the operator complete control over the individual character fit needed in some types of work.

Auto Kern (White Space Reduction) – Manual Mode Only. – When setting large display sizes of type, it may be desirable to decrease the amount of space between *all* characters. For special effects, the space can be reduced to a point where the characters actually overlap. The Auto Kern command (CONTROL + "r") is followed by one digit (1–9), which indicates the amount of white space to be removed between the characters.

Control + r + 1 = 1/8 of a unit removed

Control + r + 2 = 1/4 (2/8) of a unit removed

This command is entered after each size and/or font command. It will affect all copy which follows. Any size or font change will restore the normal amount of white space. Pressing the Reset on the keyboard, or entering Control + r + 0, will also restore the machine to normal character spacing.

Note: If using Auto Kern while justifying, be sure letterspacing is at zero. Auto Kern is generally used for headings and larger point sizes. More than one Auto Kern should *not* be entered on a line.

Student Activity:

Using the Kern Command procedure, set the following exercises:

a. Using the Minus ½ Unit key, set in 36-pt type:

WAR AVERTED BY DIPLOMACY

b. Using Auto Kern procedure, set the following, keying Control r5 (35 pt. type):

VARSITY TEAM DEFEATS VILLANOVA 36-35

P. Reverse Carriage

Objective: Be able to perform Reverse Carriage operations to insert copy in the left-hand margin and for copyfitting purposes.

Information: The Reverse Carriage function is used in many jobs to back up the carriage and insert a character or word outside the margin. For example, in a column of names, one name may be preceded by an asterisk:

Charlie Brown
Peppermint Pattie
* Snoopy
Lucy

To insert copy outside the margin, as in the case of the asterisk in front of Snoopy's name, follow these steps:

1. Keyboard a Reverse Carriage command, which is Control + Minus ½ Unit key.

2. Type copy to be inserted (in this case, *).

3. Keyboard a *closing* Reverse Carriage command, Control + Minus ½ Unit key.

Any amount of copy can be typed in the Reverse Carriage sequence. For example:

NOTES TO REMEMBER: Now is the time
for all good men
to come to the aid

In this case, "Notes to Remember:" would not fit in the regular ½" margin normally left by the typesetter. The operator must indent first. To set the above example, the following steps should be followed:

1. Store an indent value with the Fixed Space key.
2. Press Fixed Space key to move carriage over.
3. Enter Reverse Carriage command (Control + Minus ½ Unit key)
4. Type "Notes to Remember:" (use EN space between words to prevent possible spreading of phrase.)

5. Type an EM space to separate "Notes to Remember:" from the body copy.
6. Enter closing Reverse Carriage command (Control + Minus ½ Unit key).
7. Type first line of regular copy.
8. On following lines, indent first, using Fixed Space key.

The Reverse Carriage function can also be used for copyfitting. For example, the operator may want to know if a heading or longest line will fit in the line-length being used. The Comp/Set will do all the calculations necessary:

1. Enter the size, line length, and font being used on the job.
2. Enter unit value shown in Line Length Remaining with the Fixed Space key. This will, of course, be equal to the line length you entered.
3. Use Fixed Space key.
4. Enter the Reverse Carriage function.
5. Type heading or longest line for copyfitting.
6. Notice the Reverse Carriage symbol (←) on the screen. The three digits stand for the exact number of units used in all copy keyboarded between the opening and closing Reverse carriage commands. When the copy typed exceeds the number of units entered with the Fixed Space key, the Reverse Carriage will close itself at the exact overset point.
7. Make note of the count, cancel line, and choose an appropriate line length for the job.

Note: The unit value of *any character* can be determined by keying the Reverse Carriage command and then the character in question. The count will appear after the (←) on the screen.

Do *not* attempt to erase or correct copy within the Reverse-Carriage sequence. If an error occurs, clear the entire line and begin again.

Student Activity:

Using the Reverse Carriage function, 12-point type, an 18-pica measure, solid leading, perform the following exercise:

MENU FOR TODAY:
Artichokes
Onion Soup
Filet Mignon
Potatoes au Gratin
Broccoli, Hollandaise Sauce
Fruit Compote

Q. Add Lead

Objective: Be able to perform the Add-Lead function.

Information: We know how to store and keyboard the Primary Leading and Secondary Leading functions. The third leading command available on the Comp/Set is **Add Lead**. When the Add-Lead Command (↓) is read by the machine, the paper advances immediately, according to the Primary Lead command. Unlike the other leading commands, when Add Lead is activated, the carriage in the typesetter does *not* return to the left margin. If the Add Lead code is used, the paper will advance an amount equal to the stored Primary Lead. A Use-Secondary-Lead key typed just before the Add Lead command will cause the paper to advance the amount stored in Secondary Lead as displayed on the function field.

The Command for Add Lead is Control + "v".

Student Activity:

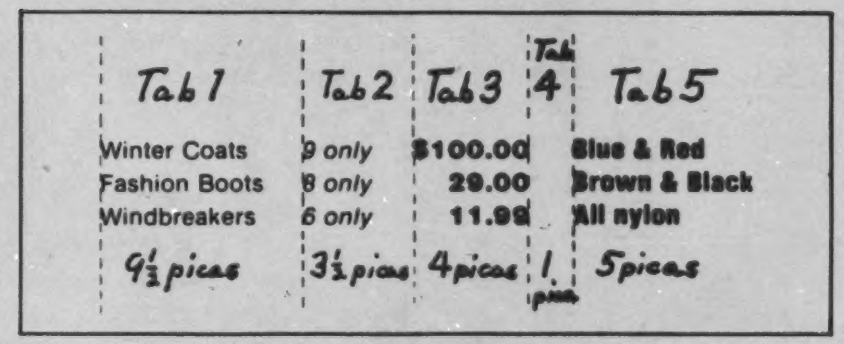
Using the Add Lead program, set the following exercise using a 12-point type, solid leading, Font 1, and line length of 30 picas:

There are, then, two typographies, as there are two worlds: (QL,R)
and: (AL)
apart (AL)
from (AL)
God (AL)
or (AL)
profits, (AL)
the test of one is mechanical perfection, (QL,R)
and of the other, sanctity—the commercial article at its best. (QL,R)

R. Tabular Matter

Objective: Be able to set tabular matter on the Comp/Set.

Information: **Tabular Copy.–** Tabular work can be done in manual mode only on the Comp/Set. Any number of tab columns may be keyboarded in one line, as long as they do not exceed the maximum 45-pica line length. When tabs [T] are set on the typesetter, each tab column has a specific starting and ending point – its left and right margins. These are determined by the line length of each column. Tab #2 begins where tab #1 ends; tab #3 begins where tab #2 ends, etc. Example:



In the above example, the first tab column, which begins at the left margin of the overall line length, is 9½ picas wide. Any copy entered in Tab 1 cannot exceed 9½ picas. Tab 2 begins where Tab 1 ends; it is 3½ picas wide. Copy entered in Tab 2 cannot exceed 3½ picas, and so on. Remember that each tab column is like a block of wood. It takes up a specific amount of space.

Setting Up a Tabular Job. – A major consideration in laying out a tabular job can be the depth of the job. The total number of vertical lines in a tab job is always known. If that number of lines must fit with a specific depth, divide the depth (in points) by the number of lines. The result is the maximum type size (set solid) that can be used on the job. If 50 lines of tabular copy must fit within 34 picas, then we divide 50 into 408 points (408 points = 34 pi X 12 pt/pica).

$$
\begin{array}{r}
8 \text{ points} \\
50 \text{ lines }) \overline{408 \text{ points}} \\
\underline{400} \\
8 \text{ points left over}
\end{array}
$$

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The 50 lines of 8-point type will fit within the required 34-pica depth if set solid (or 6- or 7-point type could be used set on 8-point leading). The leftover 8 points could be distributed between the lines of copy if the job had to be exactly 34 picas. Often tabular copy is leaded additional points to improve readability.

After determining the leading, it is necessary to determine the number of tabs required. For example:

Winter Coats	9 only	$100.00	Blue & Red
Fashion Boots	8 only	29.00	Brown & Black
Windbreakers	6 only	11.99	All Nylon

a. There are four obvious columns of copy in the above example.

b. Referring to the above example, we see that the Tab 3 column is set flush-right and the copy in the next tab column is to be set flush-left.

If fixed space had not been entered, there would be no space between the last two columns of copy. Small columns are often used to create space between other columns (referred to as a gutter.) In order to set the four columns of copy in the above example, a "fixed space" is keyboarded between the third and fourth tab columns.

In summary, to determine the number of tabs required, follow the two-step process of (a) determining how many columns of copy there are, and (b) how they relate to adjacent columns.

Next, determine the line length of each tab column.

a. Determine if the longest line of each tab column will fit in LL assignment. This can be done by setting the longest line with the correct line length and size entered. If this line oversets, widen the line length or reduce the size of the type.

b. If the copy in the tab column is to be justified, the operator will simply follow normal justification procedures, using the LL of the tab column.

Finally, write out the necessary information for each tab column on a layout sheet, and refer to it when setting the tabular job.

Keyboarding Tabular Copy. – Follow these instructions:

1. Enter Manual Mode.
2. Enter size, font, line length, primary leading and secondary leading for first tab column.
3. Type copy for first line of first column. (Note: It is not necessary to keyboard a tab for the left margin of first column.)
4. Press tab key and size, font, line length, etc. for the second column, and type copy for second column.
5. Continue across the page.
6. After last column enter a Return.
7. For second line, simply type the copy, using tabs for each item except the first.
8. Continue in this manner.

Notes:

1. Separate all tab columns with a tab code.
2. The sum of all tab-column line lengths across must never exceed 45 picas.
3. Enter correct line length for each column before typing copy, unless all tabs are identical.
4. Indicate a flush right, left, or center before going to next column. The tab takes the place of the return.
5. Enter a return only after last tab in the line.

Student Activity:

Set the following tabular copy to a depth of approximately one inch, with an overall line length of 24 picas. Following the steps outlined, determine the appropriate point size and leading. Keyboard the job.

President	J. R. Smith	889-7002	ext. 240
Sales Manager	B. Thompson	889-7302	ext. 277
Asst. Sales Manager	K. DeWitt	889-8204	ext. 301
Personnel Director	E. O'Keefe	889-9841	ext. 205
Product Inspector	M. Kary	889-5021	ext. 222
Marketing Specialist	A. S. Jenkins	889-6402	ext. 345

APPROXIMATE POINT SIZE OF ASCENDERS AND DESCENDERS

Type Size (Points)	Approximate point size of: Ascenders (80%)	Descenders (20%)
5	4 Point	1 Point
5½	4½	1
6	5	1
7	5½	1½
8	6½	1½
9	7	2
10	8	2
11	9	2
12	9½	2½
14	11	3
18	14½	3½
24	19	5
30	24	6
36	29	7
48	38½	9½
60	49	12
72	57½	14½

To Maintain Leading Between Lines of Different Sizes:

1. Determine descender value of largest size in first line.
2. Determine ascender value of largest size in next line.
3. Add values of 1 and 2 above to determine minimum leading required.
4. If additional leading is desired, add such to the minimum amount.

Mark-Up Abbreviations

Size	SF	Use Fixed Space	FS
Font	FT	EN Space	EN or
Line Length	LL	EM Space	EM or
Store Primary Leading	PL	Store Leader	STL
Store Secondary Leading	SL	Use Leader	
Use Secondary Leading	USL	Return	
Lower Case		Flush Left	
Upper Case		Flush Right	
Super Case	SS	Center	
Mortise ½ unit		Reverse Carriage	RC
Store Fixed Space	SFS	Repeat Line	RL

CONTROL FUNCTIONS

Function	Control key = ©
Auto mode	© a
Manual mode	© m
Store new disc widths	© y
Line length flag-- Pica/points	© d 0 (LL ####)
Line length flag-- Units	© d 2 (LL ####)
Line length flag-- Ciceros/points	© d 1 (LL ####)
Minimum word space change	© n #
Maximum word space change	© x ##
Letterspace change	© s #
White space addition	© f # (1/8s)
White space reduction	© r # (1/8s)
Store leader character	© use leader (character)
Leader width change	© w##
Store fixed space	© fixed space ###
Single fixed space	© z #
Indent Left	© Flush left ####
Indent Right	© Flush right ####
Indent Both	© Center ###c
Cancel indents	© Center 0000
Repeat line (Manual mode only)	© Return
Add lead	© v
Reverse carriage sequence	© minus ½ unit
End of job	© e
Cancel line	© c l
Clear ACL	© k
Paper index (film/RC)	© p 0 (LL ####)
Paper index (standard)	© p 1 (LL ####)
Insert widths (parity error)	© i ##
Re-read widths (parity error)	© g

	Messages
Overset	1
Zero code from keyboard (Two keys pressed simultaneously)	4
Program board (possible error)	9
Parity error (disc width)	####

means digit(s)

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COMP/SET PHOTOTYPESETTER — SINGLE KEY FUNCTIONS

Function	key(s)	Displayed where?	Punched?	Found by Search?
Size change	Size dd	Typing field	YES	YES*
Line length change	Line length dddd	Function field/LL digits	YES	YES*
Store primary lead	Store PL ddd	Function field/PL	YES	YES* (½ pts-No)
Store secondary lead	Store SL ddd	Function field/SL	YES	YES* (½ pts-No)
Use secondary lead	Sec lead	Typing field	YES	YES
Font change	Font d	Typing field	YES	YES*
Shift	Shift	Upper case characters	NO	N/A
Shift lock	Shift lock	Upper case characters	NO	N/A
Super shift	Super shift (in or out)	Typing & function field/SS	YES	YES
Em space (18 units)	Em space	Typing field	YES	YES
En space (9 units)	En space	Typing field	YES	YES
Fixed space	Fixed space	Typing field with digits	YES	YES**
Set center	Center	Typing field	YES	YES
Set flush left	Flush left	Typing field	YES	YES
Set flush right	Flush right	Typing field	YES	YES
Set ragged both	Center Center	Typing field	YES	YES
Set ragged left	Flush right Flush right	Typing field	YES	YES
Set ragged right	Flush left Flush left	Typing field	YES	YES
Mortise	Minus ½ unit	Typing field	YES	YES
Return	Return	Typing field	YES	YES***
Reset	Reset	N/A	(Initializes Comp/Set & function field)	
Tab	Tab	Typing field/tab counter	YES	YES
Use leader	Use leader	Typing field	YES	YES
Control functions	Control + alpha)	Typing & Function field	YES****	NO****
TAB/DATA OPTION ONLY				
Use data storage	Data dd	Typing field	NO	N/A
Use Tab storage	Tab	Typing field	YES	N/A
EDITING KEYS				
Cursor left	(arrow left)	Typing field	N/A	N/A
Cursor right	(arrow right)	Typing field	N/A	N/A
Single character erase	Single erase	erases last character typed	N/A	N/A
Stop/Step reader	Cursor right (while reading)	Typing field	N/A	N/A
Use reader	Read	Typing & Function field/R	N/A	N/A
Use search	Search	Typing & Function field/S	N/A	N/A
Word erase	Word erase	Erases last word	N/A	N/A

NOTES:

d denotes digits

* To search to functions with digits, the operator must put entire function & digits in search field. When searching to text digits...be sure to make the search unique so as not to stop on function digits.

** When searching for fixed space function, the entire sequence including digits must be entered in the search field.

*** Can search to a return and halt...return code will be stripped and operator must manually keyboard correct key to continue.

**** Control functions will punch single and multiple codes. These commands cannot be searched for in the search field.

N/A Not applicable

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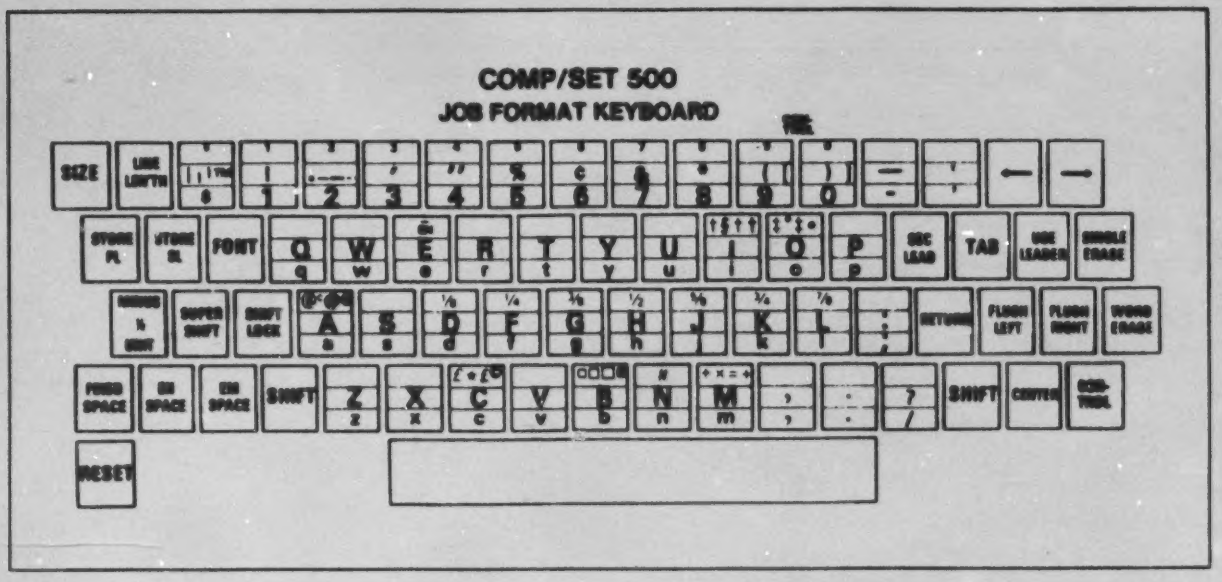
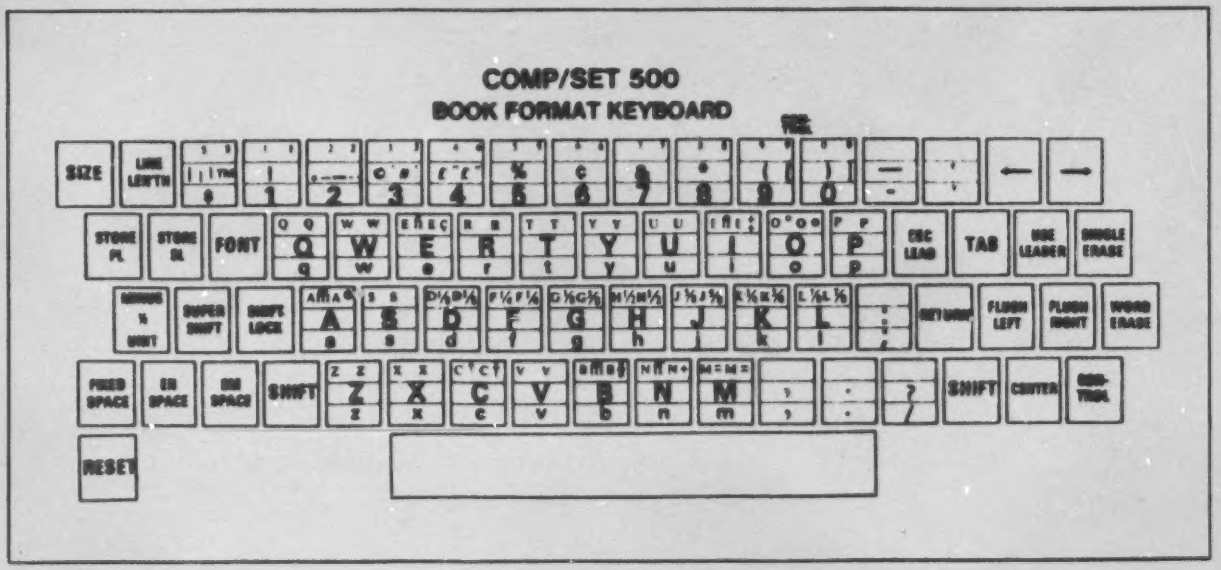
COMP/SET PHOTOTYPESETTER CONTROL FUNCTIONS

Function	Control key followed by	Displayed Where?	Punched?	Found by Search?
Add lead	V	Typing field	YES	NO
Auto mode	A	Function field	YES	NO
Cancel indents	Center 0000	Line length remainder/LR	YES	NO
Cancel line	CL	N/A	NO	N/A
Clear ACL	K	Function field/ACL	NO	N/A
End of job leading	E	Function field/ACL	YES	NO
Floating accent adjustment (-/+) 550 only	floating accent, a-r or A-R	Typing field	YES	NO
Indent both	Center dddd	Function field/LR	YES	NO
Indent left	Flush left dddd	Function field/LR	YES	NO
Indent right	Flush right dddd	Function field/LR	YES	NO
Insert widths (after width error)	I dd (00-31)	Typing field	NO	N/A
Leader width change	W dd	Function field	YES	NO
Line length entry-Picas/points	D 0	Function field/LP	YES	NO
Line length entry-Cicerco/points	D 1	Function field/LC	YES	NO
Line length entry-Units	D 2	Function field/LU	YES	NO
Letterspace change	S d	Function field/LS	YES	NO
Manual mode	M	Function field	YES	NO
Maximum word space change	X dd	Function field/JS	YES	NO
Minimum word space change	N d	Function field/JS	YES	NO
Paper index (film/RC)	P 0	Function field/LR	NO	N/A
Paper index (Standard-Stab paper)	P 1	Function field/LR	NO	N/A
Re-read widths (parity error)	G	N/A	NO	N/A
Repeat line (manual mode only)	Return	Typing field	NO	N/A
Reverse carriage sequence	Minus ½ unit	Typing field	YES	NO
Single fixed space	Z d	Typing field	YES	NO
Store fixed space	Fixed space ddd	Function field/FS	NO	NO
Store leader character	Use leader, character	Function field/LD	YES	NO
Store new disc widths	Y	Typing field/cursor	NO	N/A
White space addition	F d (one-eighth units)	Typing field	YES	NO
White space reduction	R d (one-eighth units)	Typing field	YES	NO
TAB/DATA OPTION ONLY				
Erase tab/data area	Tab 00 word erase	N/A	NO	N/A
Store tab information	Tab dd	N/A	NO	N/A
Set tab index	O (oh) dd	N/A	NO	N/A
Store data information	Data dd	N/A	NO	N/A
503 RECORD/PLAYBACK OPTION ONLY				
Punch on/off	L	Function field	NO	N/A
Store search	Search (up to 5 keys)	Function field	NO	N/A
Strip function	Word erase	Function field/next to mode	NO	N/A
Halt tape (not re-punched)	H	N/A	YES	NO
Typesetter on/off	T	Function field/2 bars flashing	NO	N/A

ERROR MESSAGES

Overset	1
Tab/Data area overflowed	2
Tab/Data information not stored	3
Keyboard code error	4
Paper tape supply low	5
Program board (possible error)	9
Parity error reading disc width	dddd (font, disc position)


COMP/SET 500
JOB FORMAT KEYBOARD
SIZE
FONT
TAB
RESET
SHIFT


COMP/SET 500
BOOK FORMAT KEYBOARD
SIZE
FONT
TAB
RESET
SHIFT

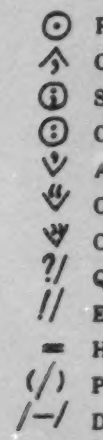
UNIT 10 – PROOFREADING

Objective: Be able to understand proofreading marks and procedures and make appropriate corrections of typeset copy.

Information: No matter how accurate the operator, errors in typesetting may be expected to occur in typeset copy. It is extremely important that all typeset copy be compared with the client's original copy; if errors are allowed to pass, costly printing jobs may have to be redone at great expense to the printer.

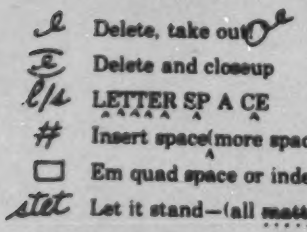
Over the years, various proofreader's marks have been developed and are generally accepted by printers, publishers, writers, advertising agencies, and governmental agencies. Errors fall into a number of categories in typesetting : *punctuation, spacing, type style, paragraphing and position, deletion and insertion, spelling,* and *miscellaneous.* The student proofreader should become familiar with the proofreader's marks used to indicate typical typeset errors:

Punctuation Marks



Period
Comma
Semicolon
Colon
Apostrophe or 'single quote'
Open quotes
Close quotes
Question mark
Exclamation point
Hyphen
Parentheses
Dash

Deletion and Insertion



Delete, take out
Delete and closeup
LETTER SP A CE
Insert space(more space)
Em quad space or indention
Let it stand—(all matter above dots)

Spelling

Incorrect spelling is circled; correct spelling indicated in margin.

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Paragraphing and Position

- Move to right
- Move to left
- Lower (letters or words)
- Raise (letters or words)
- Align horizontally
- Align vertically
- Begin a paragraph
- No paragraph.
- Run in
- No paragraph indention
- Transpose letters in a word
- Transpose enclosed in circle matter

Style of Type

- wf — Wrong style of type
- lc — Set in LOWER CASE or LOWER CASE
- caps — SET IN capital letters
- caps + lc — Lower case with Initial Caps
- sc — SET IN small capitals
- rom — Set in roman type
- ital — *Set in italic type*
- lf — Set in light face type
- bf — **Set in bold face type**

Spacing

- Close up entirely; take out space
- Less space between words
- # — Insert space

Miscellaneous

- Broken type
- Invert (upside-down type)
- Push down space
- Spell out (Capt) Smith)
- ok w/c — OK "with corrections"
- ok s/c — or "as corrected"
- Ellipsis
- Printer's error
- Author's alterations

Procedure: A preferred routine in proofreading is to have one person (the holder) *hold* the typeset proof and make the proofreader's marks on that proof while the second person (the reader) *reads* the client's original.

Corrections are made by the holder, who indicates the error in colored pencil or ink, placing the appropriate proof mark in either the left or right margin of the typeset copy. Corrections should *never* be made on the client's original copy.

The proofreader should observe the following rules while proofreading:

1. An obvious misspelling should be corrected even though the misspelling occurred in the client's original copy. When forwarding the corrected proof to the client, the client's attention should be called to the correction.

2. Should a misspelling occur in dialog copy, the misspelling should be allowed to stand, but it should be brought to the client's attention.

3. Since the underscore stands for italic, the occurrence of extensive underlining in the client's copy should always be questioned to ascertain the client's intention – i.e. should copy be italicized or should it be underscored?

4. Proofreaders should always resort to the dictionary if uncertainty exists about spelling or hyphenation.

5. Should notations be necessary on the client's copy, such notations should be made *lightly in pencil.*

6. When proofreading previously corrected typeset copy, the entire preceding and following lines or the complete paragraph should be reproofed.

Proof with Errors Marked

THE PRACTICE OF TYPOGRAPHY, if it be followed faithfully, is hard work—full of detail, full petty restrictions, full of drudgery, and not greatly rewarded as men now count rewards. There are times when we need to bring to it all the history and art and feeling that we can, to make it bearable.

But in the light of history and of art, and of knowledge and of mans achievement, it is as interesting a work as exists—a broad and humanizing employment which can indeed be followed merely as a trade, but which if perfected into an art, or even broadened into a profession, will perpetually open new horizons to eyes our and opportunities to our hands.

—D. B. Updike

Proof after Corrections Have Been Made

THE PRACTICE OF TYPOGRAPHY, if it be followed faithfully, is hard work—full of detail, full of petty restrictions, full of drudgery, and not greatly rewarded as men now count rewards. There are times when we need to bring to it all the history and art and feeling that we can, to make it bearable. But in the light of history, and of art, and of knowledge and of man's achievement, it is as interesting a work as exists—a broad and humanizing employment which can indeed be followed merely as a trade, but which if perfected into an art, or even broadened into a profession, will perpetually open new horizons to our eyes and opportunities to our hands. —D. B. UPDIKE

Student Activity:

Correct the following copy, using the appropriate proofreader's marks. The first paragraph is correct copy, the "typeset" copy follows:

On a hill by the Mississippi where Chippewas camped two generations ago, a girl stood in relief against the cornflower blue of Northern sky. She saw no Indians now; she saw flour mills and the blinking windows of skyscrapers in Minneapolis and St. Paul. Nor was she thinking of squaws and portages, and the Yankee fur-traders whose shadows were all about her. She was meditating upon walnut fudge, the plays of Brieux, the reasons why heels run over, and the fact that the chemistry instructor had stared at the new coiffure which concealed her ears . . .

from Main Street by Sinclair Lewis

On a hill by the Mississippi where Chippeaws
camped two generations ago a girl stood in re-
lief Against the cornflower blue of northern
sky She saw no indians now she saw flour mills
and the blinking windows of skyscrapers in
Minneapolis and Saint Paul. Nor was she thinking
os squaws and portages, and the Yankee fur traders
whose shadows were all about her.
She was meditating upon walnut fudge, the plays
plays of Brieux, the reasons why heels ruin over,
and the fact that the chemistry professor had
stared at the new coiffure which her ears concealed.

from MAIN STREET by Sinclair Leiws